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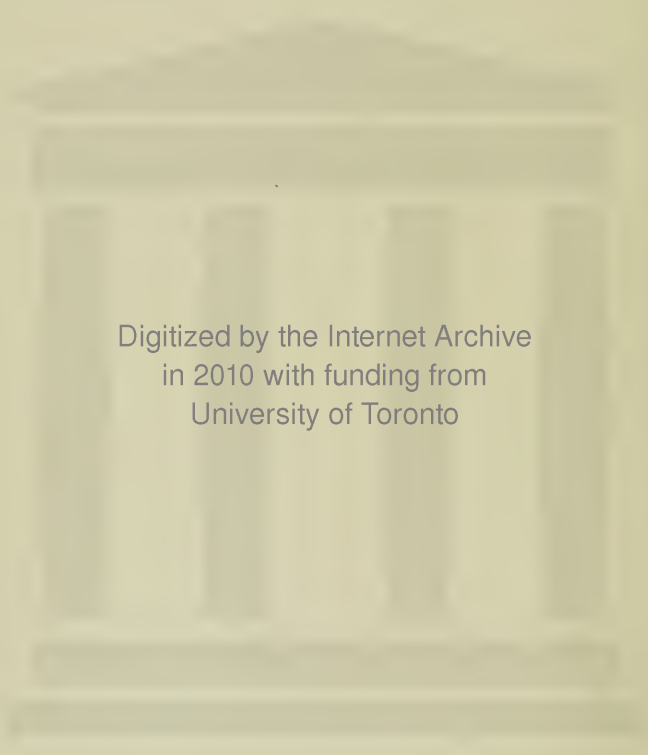


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THE  
DUBLIN JOURNAL  
OF  
MEDICAL SCIENCE

EDITED BY

SIR JOHN W. MOORE, M.A., M.D., M.Ch. DUBL., D.Sc. OXON.,  
EX-PRESIDENT OF THE ROYAL COLLEGE OF PHYSICIANS OF IRELAND,  
SENIOR PHYSICIAN TO THE MEATH HOSPITAL AND COUNTY DUBLIN INFIRMARY,  
CONSULTING PHYSICIAN TO CORK-STREET FEVER HOSPITAL,  
EX-SCHOLAR AND DIPLOMATE IN STATE MEDICINE  
OF TRINITY COLLEGE, DUBLIN;

and

T. GILLMAN MOORHEAD, B.A. M.D., DUBL.,  
FELLOW OF THE ROYAL COLLEGE OF PHYSICIANS OF IRELAND,  
PHYSICIAN TO THE ROYAL CITY OF DUBLIN HOSPITAL,  
CONSULTING PHYSICIAN TO THE CLONSKEAGH FEVER HOSPITAL,  
DIPLOMATE IN STATE MEDICINE.

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# THE DUBLIN JOURNAL

OF

## MEDICAL SCIENCE.

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JANUARY 2, 1911.

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### PART I.

### ORIGINAL COMMUNICATIONS.

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ART. I.—*The Treatment of Fractures by Ancient and Modern Methods.*<sup>a</sup> By W. I. DE C. WHEELER, M.D., F.R.C.S.I.; Surgeon to Mercer's Hospital.

MR. PRESIDENT AND GENTLEMEN,

WHEN you did me the honour of inviting me to become your President for the coming year—an invitation which every old member and officer of the Association practising in this city is ambitious to receive—I had little difficulty in choosing a subject for my address. It seems to me that this is an appropriate occasion for the review of the treatment of fractures, when surgeons for the first time in history are introducing drastic and revolutionary changes in methods which until yesterday were considered settled and irrevocable. Secondly, paradoxical as it may seem, the study of fractures must be considered a new one, since operative surgery and X-ray photography have made possible a study of the anatomy and pathology of living bones. And, thirdly, the subject has attained a very considerable medico-legal importance

<sup>a</sup> The Inaugural Address delivered before the Dublin University Biological Association, November 19, 1910.

owing to the introduction of the "Workmen's Compensation" and "Employers' Liability" Acts of Parliament.

A study of the treatment of fractures makes us realise how slow was all surgical progress up to and including part of the last century. Thirty years ago the late Sir William Lawrence, when opening a clinical lecture on the subject of the kidney, said:—"And now, gentlemen, I will deal with an organ which, thank God, is beyond the reach of surgery"; and to-day we find in some of the so-called modern hospitals the adoption of methods for the treatment of broken bones which were practised with more success by the Egyptians three thousand years before Christ.

As far back as surgical literature can be traced the principle which governed the treatment of fractures was regarded like "the Law of the Medes and Persians which altereth not." No surgeon ever questioned the necessity of prolonged immobility with or without extension in appliances, sometimes simple, sometimes resembling the torture jackets of the Middle Ages.

It is true that the nineteenth century saw the birth of a number of works describing the mechanism of fractures, amongst the most famous of which were those by Dupuytren, Hamilton, and Malgaigne. Velpeau had doubts as to the effectiveness of the orthodox methods of treatment, but had not the courage of his convictions, and, like all his immediate predecessors, accepted the claim of Ambroise Paré, the Father of French surgery, who, in 1578, said that he had brought the art of chirurgery to such perfection that there was nothing left for posterity "but a small hope to add some things." Wiseman, who acquired much fame as a surgeon in the reign of Charles II., and who formed "a bridge of a single plank between the Stuarts and the great eighteenth century school, led by Pott and Hunter," was found advocating operation in certain cases; but beyond this only added to the surgery of fractures more splints and more extension. Hippocrates and Galen advanced the teach-

ing of their own forefathers, and there seems to be no beginning to the methods of treating fractures which have been accepted as infallible up to our own time.

Yet it should be possible to trace the surgery of fractures to the fountain head, for a bone once broken forms a permanent index from which can be gauged the ability of the surgeon or the healing powers of nature, and there is no lack of specimens from the earliest times to enable such a study to be made.

An example of the primitive state of the surgery of the bones is furnished in the works of Sir Astley Cooper as late as 1828. The directions for reducing a dorsal dislocation of the hip are as follows:—Free venesection is at first resorted to, then the patient is placed in a bath at a temperature of 100°, the heat of the water being gradually increased until the patient faints. While he is in the water he is given a grain of tartarised antimony every ten minutes until nausea is excited. He is then taken out of the bath, put on a hard mattress, and the bone put back in its socket. Crude as this treatment appears it is not less scientific than the more modern employment of a long Liston's splint with a perineal band for counter-extension.

The most antiquated surgical appliances ever discovered, with the exception of some ancient instruments for circumcision, were two sets of splints found applied to the bones by the Egyptian expedition from the University of California in the latter part of the year 1907. The application of these splints has been proved, after the most careful scientific investigation, to date about three thousand years before Christ. During the progress of the expedition a cemetery of rock-cut tombs of the Fifth Dynasty (2370 B.C.) was excavated, and in these tombs the splints which shall be briefly described were found intact. They are the only examples of *ante-mortem* splints found previous to the Christian era, although others were found applied by the priests to the forearm of King Siptah (Nineteenth Dynasty), who

received his injuries long after death at the hands of plunderers of his tomb.

The first case was that of a girl, aged about fourteen, who sustained a comminuted compound fracture of the middle of the shaft of the right femur. This was treated by the application of one anterior, one posterior, and two lateral splints, fashioned from the mid-rib of the date palm. It is of special interest that the splints only reached a point about three inches above the site of fracture, although inferiorly they were carried to a level seven inches below the knee joint.

The splints were carefully padded with folds of linen bandage, and were held in position by like material tied in reef knots.

A single pad was found just below the site of fracture covered with rust-like stains which, notwithstanding the lapse of nearly five thousand years, had the appearance of remarkable freshness. That these were blood stains is undoubted from the circumstances under which they were found in numerous instances. The pad was probably employed to cover the wound in the soft parts and to control hæmorrhage.

The presence of blood was extremely significant, for in *ante-mortem* fractures the broken ends of the bones were copiously stained, and, on the other hand, when a fracture had been produced *post-mortem* by plunderers of a tomb, the blood marks were conspicuous by their absence.

The second case—a fracture of the forearm found with splints *in situ*—was discovered by a strange coincidence in the same cemetery, for together these two cases constitute the only known splints applied to living patients earlier than the Christian era. As in the first case, this fracture was probably compound, for a stained pad of vegetable fibre was found pushed into the medullary cavity of the ulna.

Probably the fracture was treated as follows:—

The wound was first plugged with the pad of vegetable fibre. A bandage (also found in good condition) of much

finer material was wound carefully round the forearm, and the splints were then applied. Each had a natural curve, forming with its fellows a tubular casing for the forearm. A gap between the splints at the back was filled in with a bundle of coarse grass. The whole was bound to the arm with broad linen, secured by tapes of folded bandage.

It is clear from the study of these two cases that splints were used by the ancients more as a protection from external injury than as a means of holding the bones in position. This is particularly evident in the first case, where they only reached about three inches above the site of fracture. It is impossible to tell how generally splints were used at these periods in the world's history, but the presumption is, from a study of many hundreds of fractures to which they were found applied only twice, that their employment was extremely limited.

In accordance with the strict conservatism which has characterised the treatment of fractures in all ages, the Egyptians in the Christian era three thousand years later were found treating fractures in almost precisely the same way. Two thousand years subsequently—so late as 1903—the medical officer in charge of an expedition into Abyssinia reported that patients with broken arms flocked to him, wearing splints in no material way different from those just described in the case of the girl five thousand years before. It is not, however, with the sole view of demonstrating the want of progress through the ages that the study of ancient methods of treatment is of interest. In many cases the ætiology as well as the character of the injury are rendered very definite, and the results found almost perfect. For example, in the case of the bones of the forearm the frequency of fracture was great then as it is now. The ulna was most constantly injured, probably owing to the use of the naboot—a stout staff employed for purposes of offence and defence by the ancient Nubians.

The left arm was raised to guard the blow, and was fractured in a large proportion of cases, the subsequent union being all that could be desired. The results of the treatment are remarkable. In eleven cases of fracture of the humerus there was only one bad result. In fractures above the middle of the shaft of the femur union was almost end-to-end with little development of callus. The worst case had but scarcely two inches shortening; in two cases there was only half an inch difference in measurement, and in many the difference was imperceptible. Below the middle of the shaft the apposition of the fragments was not so good, but compared favourably with the results of modern treatment. Fracture of the clavicle showed the worst results, and gave the only examples of ununited fracture. It is interesting to compare these ancient specimens with the broken bones found in modern times among the uncivilised races who have not had access to the methods of white men. Examples of these can be found in the Anthropometrical Museum of Trinity College amongst what is known as the Hadden collection of bones. The specimens are gathered from the remains of the natives of Torres Straits between New Guinea and Australia, and comprise several beautiful examples of healed fractures of the skull, in addition to fractures of the humerus, radius, ulna, and fibula.

The first specimen demonstrates a double fracture of the humerus, one immediately below the tuberosities, the other below the insertion of the deltoid. From the severity of the injury or injuries it is not to be wondered at that marked shortening is the result, though the chief displacement is a rotatory one, the internal epicondyle having passed forward through an angle of  $45^{\circ}$ .

There is slight angular deformity due to the action of the triceps, a displacement which was noted in healed fractures of the humerus found during the Egyptian excavations.

The final result, taking into account the double fracture, cannot be said to be unsatisfactory.

The second humerus in this series is an example of an oblique fracture below the insertion of the deltoid, the line of fracture travelling from in front downwards and backwards, so that the adjacent ends of the fragments overlapped.

The fracture united with no rotatory displacement and with apparently very little shortening, the amount of which could not be accurately estimated owing to absence of the bone of the opposite side. There is in this case also slight angular deformity.

In one example of Colles's fracture the union is almost perfect, there being but 7 mm. elevation of the styloid process. The fracture could not be detected but for the slight alteration in the direction of the facet.

Four fractures of the ulna at different levels in each specimen have united with practically no displacement.

Compare these fractured bones and those found by the Egyptian expeditions with the specimens recovered from the victims of quite recent surgery, examples of which are to be seen in the Museum of the Royal College of Surgeons in Ireland, and our sympathy must rest entirely with the modern patient treated by orthodox methods.

The successes of the archaic surgeons, without having recourse to prolonged fixation or extension, taken with the results obtained by uncivilised peoples, are surely an ancient justification for the modern anti-fixation teaching of Lucas Championnière.

The high standard of repair found in fractures, either untreated or treated in a manner far removed from methods of immobilisation, proves there must be a wonderful self-adjustment of the fragments in the mending of broken bones. The immediate forces causing displacement sooner or later become antagonised, muscle-spasm ceases through fatigue and is counteracted by the action of other muscles not yet brought into play. This secondary action of muscles may be helped by natural forces, such as the weight of the limb.

This brings us to the question that, given an oblique

fracture with marked overlapping, is it possible to reduce the deformity and hold it reduced by the application of splints? Is it not more likely that the overlapping will remain or recur and the application of the splints prevent the natural adjustment of the bones to which reference has been made? If the prolonged use of splints tends to maintain malpositions rather than to hold deformities reduced, and the results of treatment on classical lines seem to justify the assumption, it is surprising their general use, with the attendant pain, stiffened joints, adherent muscles, and persistent œdema, should have been countenanced for so many years.

Erichson was one of the last great writers to adopt an attitude of *laissez faire*, but his opinions as to the finality of surgery have been effectually shattered in the case of fractures by the dawn of an era inseparably associated with three names—Arbuthnot Lane and Sir William Bennett of London, and Lucas Championnière of Paris. These, although not the first to discard the fossilised methods of surgical ages, were discoverers in the sense laid down by Sidney Smith—"That man is not the first discoverer of any Art who first says the thing, but he who says it so long, so loud, and so clearly that he compels mankind to hear him." Lucas Championnière, whose methods were modified and popularised in England by the work of Sir William Bennett, was the first to show the absolute futility of the treatment of fractures by prolonged immobilisation in splints, and to insist that clinical observation must alter methods based on ancient usage. He ascribes his courage in condemning customs which had become almost a religion in surgery to the great examples of Lister and Pasteur.

By gradual stages he arrived at the principles of his treatment of fractures which are now adopted in their entirety or with modification all the world over.

First, he began by lessening the degree of immobility, then he did away with immobility altogether; after this he commenced movements at an early stage, and then

practised them immediately after the injury. Finally, he adopted the general massage of the muscles and joints and even encouraged movements of the bony fragments during repair.

Two primary conditions are laid down for the performance of the movements recommended. First, they must be painless, and secondly they must cause no new displacement. The massage is essentially different from that of ordinary masseurs; it must be at first soft and smooth, taking the form in bad cases of slight mobile pressure in the direction of the venous current. As Lucas Championnière expresses it—Let it be a “mere caress.” In this way movements are administered, so to speak, in measured doses, just as a medicine or a dose of X-rays.

It would be impossible to give even an outline of the results of the forty years’ work of this great pioneer in the time at our disposal—he deals exhaustively with every condition of fracture. Suffice it to say that he treats fracture of the patella by operation, but that of the olecranon by massage and movements which produce a perfect result in about fourteen days. In fractures of the neck of the femur he suggests treatment by movements more than massage, and recommends an attempt to walk in nine or ten days. He claims that the reduction of a fracture is only a relative necessity, which should not be resorted to unless deformities of the axis of the bone are incompatible with the function of the limb.

Reduction is useless, he says, in the lower third of the leg, in the shaft of the humerus, in all fractures with impaction, and moderate deformity, in most cases of fracture of the upper end of the femur and humerus and in all fractures produced by muscular action.

As regards operation, Lucas Championnière naturally prefers his own method, and reserves operations, of which he has had very great experience, to those cases which will yield to no other method.

Bennett quotes a remarkable case of complicated fracture treated by early movements and massage. In fifteen minutes the pain was gone, a distinct analgesic action having been produced. This he attributes to many causes, such as the reduction in the tension of the limb by the mechanical unloading of the muscles and to the reflex action on the nerves, which brings about the disappearance of muscle spasm. Dr. Dagrán has seen dislocation of the shoulder spontaneously reduce owing to the relaxation of the muscles during gentle massage.

At first sight it is difficult to reconcile the principles of Lucas Championnière with the contention of Arbuthnot Lane. The latter insists on absolute anatomical reduction of the deformity by operation in practically every fracture. One can see in the writings of the Parisian surgeon a fear lest Lane's method is a continuation of treatment by reduction and fixation, and that the use of plates and screws is but a glorified system of internal splints.

The two contentions are not, however, on so diametrically opposite a basis as at first sight appears. Both surgeons see that reduction, or so-called reduction, of a fracture with prolonged immobility in splints is futile. The one is able to produce excellent functional results by attention from the first to the muscles, nerves, vessels, and joints, and obtains in so doing great assistance from nature in the way of natural self-adjustment of the broken fragments. The other seeks not only good functional results, but ensures anatomical perfection in the only possible manner—*i.e.*, by open operation and the securing of the fragments by his plates and screws, which are now of world-wide fame.

As we are honoured by the presence of Mr. Arbuthnot Lane I will not describe his principles and methods.

In a well-equipped hospital the operative treatment is the best, and likely to produce results which will ensure that the labouring man is discharged quickly, suffering from no disability. In private practice, on the other

hand, when massage and careful daily attention can be obtained by paid masseurs and assistants, Lucas Championnière's treatment, or some modification of it, is the least anxious for the surgeon, and produces excellent results. In every case of fracture, where, after reasonable trial, the apposition of the fragments, as shown by an X-ray photograph, is not sufficient to guarantee a useful limb, operation is undoubtedly indicated. Such cases, too, are far from the exception.

It is unnecessary to add that when, after careful examination, little or no displacement of the bones is found produced by the injury, operation is contraindicated.

It is no exaggeration to say that to-day there is still a large body of surgeons who only nibble at the two methods of treatment referred to, and that massage and movements on the one hand and operation on the other are adopted only in a half-hearted manner. The mechanical ingenuity of these gentlemen is ever "lavishly expended in devising splints and apparatus, and the cry is 'Still they come.'"

There are some few who, disregarding the teaching of the new schools, persist in treatment by prolonged immobilisation in splints, and point to the case of the Chinese lady's foot, which was immobilised all her life, and yet the joints, even when examined microscopically, appeared in every way perfect. We are left to imagine, however, the physiological value of this microscopically perfect set of joints. To use the words of a recent writer—"It is a convincing illustration of the inutility of morphological perfection."

In conclusion, I think the medico-legal aspect of fractures to-day is of paramount importance to every practitioner. It is not so long ago since the decision against Lynn Thomas & Skryme rendered it dangerous for any surgeon to depart from lines of treatment laid down in text-books. Courts of law are for the most part in sympathy with this position, for, by the nature of their training, judges treat written authority with

great deference. But this anomalous state of affairs is surpassed in the endeavours made by tribunals with the little knowledge of medical matters which is proverbially dangerous to adjudicate in cases of fracture in civil actions under the Workmen's Compensation Acts. It is of daily occurrence in the courts to see medical expert witnesses on both sides illustrating to a bewildered judge the many-sidedness of truth. X-ray photography has rendered the lay judge still more liable to pitfalls. Very slight lack of skill or care on the part of a radiographer may lead to the production of a most deceptive picture. But, assuming a perfectly produced *bonâ fide* X-ray photograph is forthcoming, we all know what a high degree of practice and skill is necessary before it is possible to interpret what the picture reveals. The overlapping and shortening with which such an authority as Lucas Championnière is often content, provided a good functional limb is produced, will secure a verdict with heavy damages from a jury misled by the apparent simplicity of an X-ray photograph. Counsel for the plaintiff is in his element when he is pointing with relentless finger to the radiograph which shows the slightest deviation from the normal bony contour.

It is necessary that the public should be educated to the fact that an apparently bad result, as seen by a skiagraph, is not necessarily a bad result, and may be all that science can do, short of immediate operation on the limb, to which so many of the public object.

We must hope that the time is near when an extension of the medical referee system will be adopted, and, instead of employing a distinguished surgeon or physician to sit beside the judge in a few isolated cases, that the Government will appoint medical men at the same salaries as judges to adjudicate with the judges on questions which medical men alone are competent to decide.

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ART. II.—*Some Recent Clinical Experiences* (Second Series).<sup>a</sup> By SIR JOHN MOORE, M.A., M.D., M.Ch., D.P.H., Dubl.; D.Sc. (*Honoris Causâ*), Oxon.; F.R.C.P.I.; Senior Physician to the Meath Hospital and County Dublin Infirmary; Professor of Practice of Medicine in the Schools of Surgery, Royal College of Surgeons in Ireland.

At a meeting of this Section of the Royal Academy of Medicine in Ireland, held on January 23, 1893, I read a paper entitled "Some Recent Clinical Experiences." In that communication I embodied notes of a number of cases, perhaps of every-day clinical experience, but which, in my opinion, threw more or less light upon obscure features in diagnosis and pathology or illustrated some practical points in treatment.

<sup>a</sup> Inaugural Address to the Section of Medicine in the Royal Academy of Medicine in Ireland, delivered on Friday, November 11, 1910.

The cases which I propose to bring under your notice in this second series of "Recent Clinical Experiences" are of a somewhat similar kind, as will appear in the sequel.

#### I. LOBAR DISTRIBUTION OF PNEUMONIA IN CHILDHOOD.

Nothing is more remarkable in the epidemic history of Dublin during the last quarter of a century than the steady decline in prevalence of enteric fever, the all-but disappearance of typhus, and the ominous increase of acute pneumonia—a disease which is much more appropriately termed "pneumonic fever." This acute infection has in fact taken the place of the old classical continued fevers in the nosology of the Irish capital.

Many of our pneumonia patients in recent years have been children of quite tender age. According to the old teaching one would have expected to meet with a lobular rather than a lobar distribution of mischief in the lungs under such circumstances. But the reverse is the fact.

CASE I.—On June 18, 1906, John C., aged three, was admitted to the Epidemic Wing of the Meath Hospital, on the fourth day of an attack of right basic pneumonia. Temperature rose to a maximum of  $103.4^{\circ}$  on the evening of the fifth day. Defervescence by crisis followed on the sixth day, and temperature remained subnormal thenceforward until he left hospital quite convalescent on July 1, the seventeenth day from the onset. During the pyrexial stage the pulse ranged between 112 and 132, the respirations from 56 to 42. The child took one grain of quinine in a teaspoonful of syrup of orange-peel three times a day for a few days, and was allowed to suck sugar-barley for his cough.

CASE II.—John H. S., aged four, came into hospital from Malpas Street, on November 4, 1906, on the seventh day of a left pneumonia, which was quickly followed by pleural effusion on the same side of the chest. After an intermittent fever of four weeks' duration, the boy made a good recovery, and left hospital on December 7, 1906.

CASE III.—A somewhat similar but much more severe attack occurred in Harry H., aged fourteen months, a postman's son,

who was admitted to hospital on March 8, 1909, on the seventh day of a left pneumonia, with consolidation of the base. Temperature fell below  $98^{\circ}$  on the *evening* of the ninth day, but rose to  $102.8^{\circ}$  on the evening of the thirteenth day, when an extensive broncho-pneumonia developed. It was not until April 20th that the temperature became permanently normal. The child was discharged quite well on May 22, 1909.

CASE IV.—Ernest B., aged six months, was admitted on January 30, 1910, two days ill of a pneumonia, which terminated by crisis on the sixth day. The localisation was in the right base.

CASE V.—Laurence F., aged nine months, son of a window-cleaner, came in on February 7, 1910, on the fourth day of a left basic pneumonia. The fever ran on to the tenth day, when it terminated by crisis. The respirations rose to 56 per minute on two evenings.

CASE VI.—Christopher R., aged eighteen months, was carried into hospital on the evening of April 4, 1910, on the fourth day of a right apical pneumonia. His temperature on admission was  $103^{\circ}$ ; pulse, 130; respirations, 34. He was discharged well on April 22nd.

CASE VII.—Josephine M'C., aged eighteen months, was admitted to hospital on October 3, 1910, on the third day of her illness. Her pulse ranged from 110 to 114, her respirations from 64 to 70, and her axillary temperature from  $101.8^{\circ}$  to  $102.2^{\circ}$  on the day of her admission. Physical examination next morning revealed dulness over the right apex, marked tubular breathing and bronchophony, conduction of the heart's sounds, and posteriorly very fine crepitations. On the sixth day fever disappeared, only to return in a modified form on the evening of the ninth day. This secondary fever died out in three or four days, and, as no quickening of the breathing or increase of cough accompanied it, was presumably of toxæmic origin alone.

CASE VIII.—Patrick S., aged two and a half years, a labourer's child, was admitted to the West Wing from Charlemont Avenue, on Monday, October 31, 1910. He was stated to have taken ill only the day before his admission, but the attack was almost certainly of longer standing. On admission his temperature was  $102.4^{\circ}$ , pulse 152, respirations 52. The child coughed frequently, but swallowed what seemed to be an abundant

sputum. Physical examination revealed signs of a right basic pneumonia-tubular breathing intermixed with fine crepitations and vocal conduction. The fever movement ended by crisis within forty-eight hours, the temperature subsequently remaining subnormal until November 8.

The point I wish to make in quoting the headings of this series of cases is that pneumococcal infection—of which these cases presumably were examples—quite commonly—in fact usually—produces a lobar pneumonia in infancy and childhood. A lobular inflammation of the lung arises in an entirely different way—in measles, as a broncho-pneumonia, from an extension of infective inflammation from the bronchi and bronchioles into the adjoining pulmonary lobules; in whooping-cough, from a reduction of air-pressure in the lobules, consequent on paroxysms of violent expiratory efforts, for as such the fits of coughing may with propriety be described.

To the fifth volume of Allbutt & Rolleston's "System of Medicine," Dr. A. P. Beddard contributed an article on "Acute Lobular Pneumonia," and in the same volume he revised Dr. Pye-Smith's article on "Lobar Pneumonia."

Too hard and fast a line is drawn between lobular and lobar pneumonia in the sectional headings of those articles. In the letterpress Dr. Beddard is careful to avoid any such rigid classification. He writes:—"The clinical course of pneumonia depends upon the kind of micro-organism which is infecting the lungs, and not upon the distribution of the pathological changes which it produces there [*i.e.*, in them]. It follows that when the pneumococcus, apart from other bacteria, produces a pneumonia, the symptoms and course of the disease will be lobar or lobular in distribution. In adults pneumococcal pneumonia is always lobar; in children it may be either lobar or lobular. . . . The younger a child is the more likely is the pneumonia to be lobular; and after about five years of age it will almost certainly be lobar. . . . The age of the child, however, is not a safe

clinical guide to the distribution of the pneumonia, because even in the youngest infants the pneumonia may be entirely lobar."

Before passing from the subject of pneumonia I would like to recall a well-known fact that apical fibrinous pneumonia, when not of the migratory type, resolves slowly. The following case illustrates this.

Nora H., aged seventeen years, a "biscuit wrapper," was admitted to the Meath Hospital from Malpas Street, a notorious hotbed of pneumonic and enteric fevers, on June 26, 1906. She took ill a month previously, and suffered from the usual symptoms of an acute pneumonic attack. On admission her temperature was  $99.6^{\circ}$ , her pulse beat 132 per minute, and her respirations were 40. Physical examination next morning revealed an extensive consolidation in the upper lobe of the right lung. The temperature was  $100^{\circ}$ , pulse 102, respirations 28 to 32. Fearing that I had really to deal with a tubercular infection, I prescribed the chloride of calcium mixture which we find so useful in tuberculosis, and ordered a liberal and nourishing diet. Temperature quickly subsided, but the respirations remained quick, as did the pulse also. However, about July 6th, a sub-crepitus ("crepitus redux") was heard up to the right clavicle; resolution, once started, went forward, and the girl left hospital apparently quite convalescent on July 17, 1906, eight weeks or so from the date of the attack.

A very similar instance of a pneumonic apical consolidation simulating pulmonary phthisis came under my observation in the spring of 1888, but the patient made a perfect recovery and is quite well at the present date.

## II. LUMBAR PUNCTURE IN PNEUMONIA.

A case of pneumonic fever, with pronounced cerebral symptoms, has recently been under my care. The especial interest attaching to this case arises from the fact that lumbar puncture seemed to restore consciousness, which had been almost completely lost.

On October 7, 1910, Mrs. Elizabeth T., aged forty-six, complained of feeling unwell. Next morning she went to her work in the fields as usual, but about 5 o'clock in the afternoon she had a shivering fit. She felt so bad that she had to give up working, and she left the place of her work with the intention of going home. Some hours later she was found lying near the Grand Canal, absolutely unconscious. She was then brought into hospital as an emergency case. On admission her temperature was only  $101.4^{\circ}$ , but next morning (Sunday, October 9) it had risen to  $104.2^{\circ}$ . When admitted, also, the pulse-rate was only 80, and the respirations were 28 per minute. There was retention of urine, which lasted until Monday, the 10th. When I saw her on Sunday morning she was still quite unconscious, very dirty, her face congested as if she had been drinking heavily. Physical examination revealed a left basic pneumonia already in the stage of consolidation.

As the patient remained unconscious a lumbar puncture was done by Dr. Boxwell about midday on Monday, the fourth day of the attack. A fair quantity of clear cerebro-spinal fluid was drawn off. On examination it proved to contain an excess of albumen, and its reducing substance (pyrocatechin or dextrose ?) was absent. A sudden defervescence had occurred during the previous night, so that the morning temperature was only  $96.6^{\circ}$ , whereas on the previous evening (at 6 p.m.) it had been  $102.3^{\circ}$ . The pulse was 60; respirations, 20-22. The urine was now examined. Its specific gravity was 1030; it was acid, and neither albumen nor sugar was present.

On Tuesday morning I examined the patient with the medical class. The woman was conscious, but quite delirious with delusions or hallucinations. I use both terms, for I do not know whether there was any substratum of truth for her fancies. In the evening her ravings increased, so that by direction of the House Surgeon two doses (one-hundredth of a grain in each) of hyoscine hydrobromide were given at an interval of some hours. Some respite followed the second dose.

As the woman was sleepless and raving when visited on Wednesday morning I prescribed 30-grain doses of the combined bromides of ammonium, potassium and sodium. After six such doses I had the satisfaction of finding her in a tranquil sleep on Thursday forenoon, October 13.

## III. ATAXIC TYPHOID FEVER.

Of this dangerous form of enteric fever two typical examples have occurred in my hospital practice within recent years. Both patients presented many clinical features in common; both, happily, recovered after protracted illness and unusually active treatment. Emphasis should be laid on the last statement, for a wide-awake expectant treatment is that which we adopt in the ordinary run of enteric cases in the Meath Hospital.

CASE I.—John M'D., aged twenty-three, a waiter, was admitted to the Epidemic Wing on January 14, 1905, which was also the fourteenth day of his illness. He complained of being "out-of-sorts," with pains in his limbs and a headache. He attributed his illness to an infection derived from stale fish bones which he was removing when his health was run down. He took to bed on January 7, having kept on his feet up to that time although he felt very ill. When admitted, he mentioned that the headache had disappeared, but that he did not sleep much. The abdomen was distended, and rose-spots were present. Owing to the tense state of the abdominal wall it was difficult to map out the spleen. Rhonchi were heard over the chest. The heart's action was weak. Its rate increased from 108 per minute on admission to 124 on the morning of the twenty-fourth day, the respirations in the same interval rising from 26 to 36. For a fortnight temperature hovered between  $102^{\circ}$  and  $104^{\circ}$ . There was moderate diarrhœa, the stools being characteristic of enteric fever. Albuminuria was present from January 19 to February 1. On the former day the urine was alkaline in reaction, with a strongly ammoniacal odour. It deposited pus, urate of ammonium, and ammonio-magnesian phosphate in abundance.

On January 20 the patient was ordered stimulants owing to increasing cardiac weakness. There was also some hypostatic pulmonary congestion, and a certain amount of tympanites was present. Two ounces of whisky daily were ordered, to be given in teaspoonful doses every second hour. A 5-minum capsule of turpentine was given every fourth hour, and a hypodermic injection of sulphate of strychnin (gr.  $\frac{1}{30}$ ) and digitalin (gr.  $\frac{1}{60}$ ) night and morning. The back of the chest was dry cupped,

and ammoniated camphor liniment was rubbed in. Five grains of urotropin, dissolved in 8 or 10 ounces of water, were taken thrice in the twenty-four hours.

On January 22, there was extreme cardiac weakness, the first sound of the heart being inaudible. In addition to the former treatment, spirit of camphor in 15-minim doses was given in milk every fourth hour. Next day the patient was very ataxic. As opisthotonos was present the strychnin was omitted, and quinine and digitalis were substituted for it. At this time the heart used to sag over to whichever side the patient lay on. Cold affusion was practised on January 26.

About the 27th of January hypostatic consolidation was detected over the bases of both lungs. This was followed by a marked improvement in the patient's condition, defervescence by lysis beginning on the twenty-eighth day and being completed by the forty-ninth day.

CASE II.—Joseph T., aged forty-five, a commercial traveller, was admitted on Wednesday, July 6, 1910, on the sixth day of enteric fever. On admission, his temperature was 103.2°, pulse-rate was 116, and respirations were 38 per minute. The urine was turbid, acid in reaction; its specific gravity was 1020, and it contained albumen. The bowels were constipated. Much bronchial catarrh was present, cooing, wheezing sounds and moist râles being audible all over the chest, back and front. The heart already showed signs of failure, beating feebly and quickly, with a faint and murmurish first sound. For ten days the fever ran an even course between 102° and 103°. A pseudo-crisis on July 16 was followed by a fresh outburst of fever lasting till the twenty-sixth day, when a second pseudo-crisis occurred. Previously to this the fever was attended by the whole group of ataxic symptoms—sleeplessness, delirium, restlessness, subsultus tendinum, carphology, myosis, injection of the conjunctival mucous membrane, incontinence of urine and faeces. On July 21 he was given 20 minims of spirit of camphor in an ounce of milk every fourth hour, and to induce sleep half an ounce of the following mixture every second hour until effective, namely:—

℞ Tincturæ Opii, 5i;  
Tincturæ Digitalis, 5i;  
Spiritus Ætheris Nitrosi, 3ii;  
Aque Camphoræ, ad 3vi.

M. ft. mistura.

On July 28—also the twenty-eighth day of the attack—temperature began to rise again, and the patient entered upon a third period of fever more characteristic than ever of enteric fever, and not terminating, after a gradual septicæmic-like defervescence, until the forty-ninth day. Up to the forty-eighth day albumen was almost constantly present in the urine, although in small quantity. From that date onward the albuminuria disappeared.

On September 3, an acute bed sore formed on the right heel, but quickly yielded to a compress kept moist with equal parts of hydrogen peroxide solution and water.

The treatment of this case was of a very active nature throughout, the principal drugs used being from time to time salicylate of quinine, turpentine, urotropin, strychnin and digitalin (hypodermically), and especially camphor. From July 12 to August 15 he had 2 ounces of whisky daily. From August 16 to September 6 the allowance of whisky was one ounce daily. After the latter date this stimulant was discontinued.

In reporting these two cases, I desire to lay stress on the extreme therapeutic value of camphor as a stimulant, antiseptic, and sedative. In 1878 Eugene Wittich prescribed camphor as an excellent remedy for the sleeplessness of melancholia in female lunatics. After the subcutaneous injection of 0.1 to 0.2 gramme of camphor in sweet almond oil, he found that the patient quickly became drowsy, and soon went off into a sleep of several hours' duration. And so in the adynamia of ataxic state in fevers a solution of camphor in almond oil, of the strength of 1 in 10, may be injected subcutaneously through a rather wide hypodermic needle as a diffusible stimulant and at the same time it will be found to act as a calmative and hypnotic.

Connected with this subject of enteric fever, it may be interesting to allude to two cases which bear eloquent testimony to the diagnostic value of Widal's test.

CASE I.—On July 23, 1910, Thomas G., aged twenty-six, married, a bricklayer, was admitted to the Epidemic Wing of the Meath Hospital under the impression that he was suffering

from enteric fever of some days' duration. His temperature, however, was not high ( $99.8^{\circ}$ ), while the respirations were unduly rapid (28 to 32 per minute) compared with the pulse-rate (100 to 112 per minute). On July 26, a few scattered rose-spots were observed, the spleen was enlarged, and in the evening the temperature in the armpit rose to  $101.8^{\circ}$ . Clinically, the diagnosis of enteric fever was now confirmed. The urine was clear, acid, and of normal colour. Its specific gravity was 1016. Neither albumen nor sugar was present. Dr. Henry Stokes "did a Widal," 1 in 20 solution, with a negative result. The case ran on with only slight fever and irregularity of the bowels, which were sometimes loose, sometimes confined. On August 6, a Widal 1 in 20 was negative after thirty minutes. The man at this date began to waste quickly, a cough set in, and fine crepitations were heard over the left apex. A microscopic examination of the stained sputum now revealed the presence of tubercle bacilli. The pulmonary disease made rapid way, moist crepitating râles were heard over both sides of the chest, cavernous signs succeeded, and the patient sank exhausted on August 21, 1910, just four weeks after his admission.

A *post mortem* examination was made by Dr. William Boxwell, who reports as to the findings as follows:—

"The thorax contained about a pint of blood-stained fluid within each pleural cavity. The lungs were engorged, semi-solid and friable; their pleural surfaces as well as their substance were studded with countless numbers of minute tubercles. There was a considerable amount of fibrinous pleurisy on both sides, and in each apex were small tubercular vomices of old standing, and probably the primary source of the dissemination.

"The heart muscle was soft, but the organ was otherwise normal.

"There were a few miliary tubercles in the liver, spleen, and kidneys, while the ileum was furrowed with numerous deep circular ulcers, showing the characteristic tubercles on the serous surfaces."

Attention may be drawn to the dilution, 1 in 20, which was used in this case. The Clinical Assistants of the Meath Hospital inform me that the negative value of

such low dilution is decided, whereas its positive value is less assured—a positive result with a dilution of 1 in 20 does not give such sure ground in favour of a diagnosis of enteric fever as a negative result gives against it.

CASE II.—On Monday, September 26, 1910, Dr. Stokes sent into the Epidemic Wing from the Extern Dispensary of the Meath Hospital a man, James W., aged twenty-seven, a shop assistant, residing at Harold's Cross, who had *walked* to the Dispensary seeking advice after a fortnight's illness. The patient looked, and was, extremely ill. Questioned as to his previous record, he stated that he had served in the army for eight years, but was at present employed in a shop. His family history was satisfactory, but he admitted that he had indulged in "drink" up to the commencement of his illness, which was stormy in its onset. He was suddenly seized with a violent occipital headache, pains in the shoulders, and across the back. On the third day a certain amount of bronchial and pulmonary trouble set in, but there was—so he said—no "spit" with it, and this condition was soon overshadowed by other symptoms, especially by diarrhoea, which was present and persisted to the extent of nine motions per diem. Mr. M'Kenny, the Clinical Clerk, reported a decrease in the amount of urine voided. Nevertheless, he found that its specific gravity was only 1012. Albumen was present.

When I first saw the patient he presented a very typhus-like aspect. His face was dusky, the eyes were injected, the pupils if anything contracted, but he was quite sensible. All over his body there was a subcuticular mottling, to which I drew the attention of any students who were present. There was no definite rash, however; nor were rose-spots visible. Examination of the chest showed a decided lesion in the base of the right lung. The percussion note over the right apex was hyper-resonant, over the base it was dull. Vocal fremitus was increased on the right side. Fine râles were occasionally audible in a small area in the right interseapular region, and rhonchi were heard in the bronchial tubes over both sides of the chest, top and bottom. Here we had evidence of a right basic pneumonia.

Russo's methylene blue reaction gave a negative result, and so also did the Widal test, but after three days the

Widal reaction became positive, and so the diagnosis of enteric fever was arrived at.

*Apropos* of this point, I may draw attention to a very important recently-published communication on the ætiology of typhus fever by Dr. William James Wilson, D.P.H., Lecturer on Hygiene in the Queen's University of Belfast. This paper was published in *The Journal of Hygiene* for September 20, 1910.<sup>a</sup>

While confirming the researches of Mott and Blore (1883),<sup>b</sup> Thoinet and Calmette (1891),<sup>c</sup> Love (1905),<sup>d</sup> Slatinéano and Galesesco (1906),<sup>e</sup> and Lucksch (1907),<sup>f</sup> as to the general presence of a leucocytosis in typhus fever as compared with the leucopenia of ordinary uncomplicated enteric fever, Wilson makes the startling statement that the Widal test affords but little assistance in the differentiation of typhus from typhoid. In 35 cases of typhus examined by him, the blood serum of 19 patients gave a positive Widal reaction with the *B. typhosus*. Hence he concludes that "this reaction is of little or no value in differentiating typhus from typhoid fever." This statement, if confirmed, would bring us back to the days of William Stokes, Henry Kennedy, and other bygone physicians, who would not admit an essential distinction between these forms of Continued Fever.

But before such a revolutionary statement is accepted, evidence should be demanded relative to the past medical history of each typhus patient, whose blood gives a positive result in the Widal test. A typhus patient may, in the first place, be a "typhoid carrier." And, next, it

<sup>a</sup> Vol. X. No. 2. Cambridge: At the University Press.

<sup>b</sup> Micro-organisms in Typhus. *Brit. Med. Journ.* 1883. Vol. II. Page 1058.

<sup>c</sup> Note sur quelques examens du sang dans le Typhus Exanthématique. *Annales de l'Institut Pasteur.* 1892. Page 39.

<sup>d</sup> An Investigation into the Leucocytosis of Typhus Fever. *Journ. of Pathology and Bacteriology.* 1905. Vol. X. Page 296.

<sup>e</sup> Recherches cytologiques sur le sang dans le Typhus Exanthématique. *Comptes-Rendus de la Société de Biologie.* LXI. No. 26. Page 85. 1906.

<sup>f</sup> Ueber den Blutbefund bei Fleckfieber. *Fol. Hæmatolog. Jahrgang 4,* 1907. Heft 4. Reference in *Centralblatt für allgemeine Pathologie und path. Anatomie.* XVIII. Page 683.

is well known that the agglutinating power of the blood of an individual who has had enteric fever may persist for months and even years—for as many as four or five years.

Be that as it may, the patient seemed to be progressing tolerably well despite a spiking temperature range and a persistent needing diarrhœa, with small motions, until the night of October 7, when a rigor, or a succession of rigors, occurred. The man became collapsed, and died in a few hours of perforative peritonitis, thus confirming the diagnosis of enteric fever in the most dramatic and tragic of all ways at 1 a.m. of Saturday, October 8.

An autopsy was made by Dr. Boxwell seventeen hours after death, with the following result:—

“On the posterior surface of the right lung was found a patch of acute fibrinous pleurisy, with underlying pneumonia, corresponding in position to the physical signs above-mentioned. The peritoneum was the seat of widespread hæmorrhagic and purulent peritonitis, and some of the intestinal contents could be seen to exude from a small perforation about two inches above the ileo-cæcal valve. The ulcers were few in number, but very deep. The spleen was not greatly enlarged. Cultures were obtained from the pneumonic patch in the lung, but only cocci grew, among which the pneumococcus was easily recognised.

“A bacillus resembling in cultural characteristics the *B. typhosus* was recovered from the spleen and gall bladder.”

#### IV. AMYOTROPHIC LATERAL SCLEROSIS.

Among the many interesting cases which presented themselves during the Session of 1909-1910 was that of a girl aged twenty-one, who was admitted from Naul, Co. Dublin, on March 3, 1910. Her complaint was of weakness and loss of flesh. She stated that she felt for the first time, about two years previously, a dull pain and numbness in her right hand and arm, with some loss of power. To it she paid little attention for nearly a year. Then the numbness attacked her left hand about nine months later, and continued for some months. Eight months before admission a similar condition was noticed in one of her legs. She began to feel very tired after walking, and suffered from pain in her back. The abnormal sensations progressed until all her four limbs were involved. Up to the time of her admission to hospital

she was able to walk about a little, but since coming in she has been confined constantly to bed.

On examination, the girl was found, in the first instance, to present the features of progressive muscular atrophy of the Aran-Duchenne type in no ordinary degree. Many of the trunk and limb muscles were extremely wasted. In the hands the thenar and hypothenar eminences had disappeared, the interossei and lumbricales had shrunk. Her hands presented the characteristic features of the *main en griffe* of Duchenne. In the shoulder, the deltoids and trapezii were much affected. On asking her to sit up in bed her head fell forward on her chest owing to the wasting of the recti capitis, splenii, and other muscles which support the head. Muscular atrophy was much less marked or advanced in the lower extremities, but the deep reflexes were extremely exaggerated and the muscles were thrown into a state of spasm on slight provocation. Fibrillary tremor was present in the tongue, thumb muscles, and other parts. Bulbar symptoms were well-marked, so that the motor nuclei in the medulla oblongata were evidently involved.

This case, then, is a good example of a far-reaching progressive muscular atrophy due to a combined degeneration of the anterior horns of gray matter, of the antero-lateral white tracts, and of the nuclei in the medulla of the motor cerebral nerves. There is no disturbance of sensation of pain or heat, as in syringomyelia.

A notable feature in the case was a persistently sub-normal body temperature. Only on two occasions during the girl's long stay of ten weeks in hospital did the axillary temperature touch 99°. The mean of the first four weeks was 97.6°, that of the second four weeks was 97°.

On May 23, the patient was transferred to the Royal City of Dublin Hospital under the care of Dr. T. Gillman Moorhead.

Under his care she remained until Monday, October 17, when she was re-admitted to the Meath Hospital looking very well, but in the same crippled state as when she left my care in May.

Dr. Moorhead has very kindly supplied me with the

following detailed account of her state on physical examination:—

“*Motor System. Lower Limbs.*—Paralysis of a spastic type. Extreme extension of toes; no atrophy or history of spasms. Reflexes: Knee jerks exaggerated, rectus clonus well-marked; plantar reflexes; Babinski sign +; ankle jerks present; ankle clonus, marked.

“*Upper Limbs:* Paralysis of a flaccid type. Atrophy marked: thenar and hypothenar eminences; extensors of forearm more than flexors; triceps, deltoid, lower two-thirds of trapezius, rhomboids, latissimus dorsi, serratus magnus. Pectorals rigid. No history of spasms.

“*Facial muscles:* No paralysis of muscles except the orbicularis oris, which is slightly affected. Lately, however (October 16, 1910), there is evidence of other facial muscles becoming affected. The face is very flushed.

“The tongue shows tremor and wasting. Indentation by the teeth is also well marked on it. There is syllabic speech. Dysphagia is present.

“*Sensory System:* Tactile, thermal and pain senses are normal, in all extremities. No R. D. (reaction of degeneration). Ocular and auditory senses are unimpaired. There are no trophic lesions. There is no mental impairment. The thoracic and abdominal viscera are normal. No abnormal constituents are found in the urine.”

#### V. A REMARKABLE STAPHYLOCOCCIC INFECTION.

I close this series of Recent Clinical Experiences with the notes of a case which puzzled the different physicians who saw the patient a good deal.

CASE.—On July 11, 1910, I visited, in consultation with Dr. J. Knox Denham, a lad of eighteen years, residing at Irish-town. He had been ill since the 1st of May with a fever, which showed no signs of yielding even after some ten weeks' duration, the temperature range being septicæmic in character, morning remissions and evening exacerbations being very marked.

The family history, so far as it could be ascertained, was good. At the age of nine the patient had an attack of enteric fever, from which (so far as he knew) he completely recovered. When about fifteen years of age he noticed every morning that his

right ear had been discharging through the night. This continued for a month or thereabouts, but he suffered no pain, nor could he assign any cause for the otorrhœa. The discharge finally stopped, and he remained well until May 1, 1910, when he was attacked (in his own words) "with a wheezing, a sore throat, and a cough." Acting under Dr. Hugh G. Westropp's advice, he at once took to his bed.

About a fortnight afterwards the right shoulder and the left hip became very painful, and the shoulder swelled. Simultaneously the respiratory symptoms diminished in severity. This state of affairs lasted for about six weeks, by which time the pain in the shoulder and hip had subsided. The patient, however, felt very weak, and his right arm was in a semiparalysed condition from muscular wasting.

Such was the state in which I found him on July 11. The opinion formed early in his illness was that he was suffering from acute rheumatism. Afterwards a suspicion that tuberculosis was present arose. His flat chest, lessened expansion over the left apex, a duller percussion-note on the left side, and diminished breath-sounds on that side all lent countenance to that view. But there was very little cough and no expectoration. Hence the presence of tubercle bacilli could not be proved.

On admission, the pulse was fast but regular. No cardiac murmurs were to be heard, but the second sound was accentuated in both the aortic and the pulmonary areas. The genito-urinary system was normal. The urine was free from albumen and sugar, contained phosphates perhaps in slight excess, was acid in reaction with a specific gravity of 1026.

The Clinical Clerk in charge, Mr. Charles William M'Kenny, supplied me with the following notes:—

"Since admission, the paralytic symptoms in the right arm have, to a great extent, been overcome by faradisation and massage; but there is still marked wasting in the muscle-groups corresponding to the ulnar and the posterior interosseous nerves. Pain has been severe on only two occasions, and on each of these the temperature, which has always been 'spiky,' went up in the evening to 103°. On the first occasion [agonising] pain was felt in the head—especially in the frontal region and in the right ear. It lasted for four days, and was only partially overcome by various nerve sedatives (*e.g.*, phenazone and tincture of gelsemium). At the end of four days the pain completely dis-

appeared. An aural examination was negative." A von Pirquet tuberculin reaction was also negative.

On the 16th of September pain was felt in the right shoulder, and on the 18th a marked swelling was to be felt on the outer aspect of that shoulder. An exploratory puncture gave exit to a couple of drops of pus, and on the 22nd Dr. Henry Stokes made an incision into the deep muscular tissues about the shoulder, when a quantity of pus escaped. The abscess cavity did not lead into the shoulder-joint, but seemed to stretch down the outer aspect of the arm in the direction of the insertion of the deltoid, and up towards the outer side of the greater tuberosity of the humerus. Examined bacteriologically by Dr. Boxwell, the pus was found to contain a practically pure culture of the *Staphylococcus pyogenes aureus*. The temperature chart shows that the opening of the abscess was followed quickly by a subsidence of the fever which had become habitual, but the thermometer readings remained very unstable, ranging between 96° and 100°.

On October 6, a swelling was found to have suddenly developed on the left forearm. This proved to be a new abscess, which was at once opened and disinfected. Since that date the patient's general state shows improvement, but an unstable temperature and quick pulse leads one to expect further pyæmic developments. On October 14, for a second time, the von Pirquet tuberculin test gave a negative result.

The abscess on the left forearm was reopened on October 20, the temperature falling as usual when exit was given to pus. On October 26, 10 cc.s. of antistaphylococcic serum were injected, as a new pyogenic focus seemed to be in process of development near the right popliteal space. This was followed by a fall of temperature extending over two days. On November 3, however, it became necessary to open the popliteal abscess, and this was done. On November 6 an antistaphylococcic vaccine prepared by Professor Arthur H. White was injected subcutaneously, and this has been followed by a defervescence by lysis, together with a general improvement and a sense of well-being on the part of a long suffering and most patient patient.

[NOTE—December 15, 1910. Since the above was written another abscess has, unfortunately, formed, and a fresh fever movement was the result. The patient's general condition, however, improves slowly but steadily.]

## PART II.

### REVIEWS AND BIBLIOGRAPHICAL NOTICES.

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*The Diseases of the Nose, Mouth, Pharynx, and Larynx.*  
A Text-book for Students and Practitioners of Medicine.  
By DR. ALFRED BRUCK (Berlin). Edited and translated by F. W. FORBES ROSS, M.D. Edin.; F.R.C.S. Eng. Assisted by FRIEDRICH GANS, M.D. London: Rebman, Ltd. 1910. 8vo. Pp. xxiv + 615.

THE author commences his preface with an apology for introducing another text-book on the subjects of the diseases of the nose, mouth, pharynx, and larynx. A perusal of the text, however, shows us that no such apology is necessary, as he vindicates his right to have the volume placed in the forefront amongst our well-known and valued book-friends, not only by the arrangement but also by the excellence of the subject-matter. He divides his work into four parts, as the title indicates; and the reader finds under each heading the anatomy, methods of examination, diseases and treatment of each organ clearly set forth.

The absence of padding, commented on by the translators, is a relief. Old methods, long since given up, are omitted, and helpful diagrams, illustrating up-to-date instruments and their actual mode of application, are given. A rapid survey also shows that the rarer forms of disease are not forgotten, and enough is said about them to enable any General Practitioner who has mastered the methods of nasal and laryngeal examination to be in a position to offer his patient, at any rate, an indication of what is amiss before sending him on to a Specialist for complete diagnosis and treatment. The drawings of diseased areas are simple and good, and though no

coloured pictures are given, the black and white ones are carefully chosen to show typical forms. As an example of the scope and complete survey of the subjects undertaken a short chapter on the troubles peculiar to voice users is included, and the treatment recommended shows how differently these troubles must be dealt with in the professional vocalist and in an ordinary patient. Much more in the same strain might be written, but enough has been said to indicate the special characteristics of the volume.

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*The Treatment of Disease.* By W. OSLER, M.D., F.R.S.  
London: H. Frowde. 1909.

LIKE everything that issues from Dr. Osler's facile pen, this is a scholarly and delightful production, well worthy of perusal. It reproduces the Address in Medicine given before the Ontario Medical Association at Toronto, June 3, 1909, and is brimful of calm good sense and keen criticism.

In discussing the principles of treatment he gives us a glimpse into the secret places of his own mind, that of one who is free from credulousness, who believes in few drugs, but who has learned to master these.

A Philadelphia friend, he tells us, once jokingly defined Osler's practice at the Johns Hopkins Hospital as a mixture of hope and nux vomica. The grain of truth in this statement lies in the fact that with many patients once we gain their confidence and inspire them with hope the battle is won.

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*Transactions of the American Dermatological Association.*  
1908 and 1909.

THESE two volumes testify to the zeal and activity of our American brethren in cultivating the field of dermatology. The papers cover a wide variety of subjects, and it is unnecessary to refer to them in detail. Some of the most interesting communications relate to the aetiology of a

common disease—viz., psoriasis. Weighty evidence is adduced in favour of these conclusions:—

(a) Rheumatism, gout, neurosis, and heredity are not direct ætiological factors in the production of psoriasis, but in the present state of our knowledge it can neither be denied nor affirmed that they may have some bearing on the obscure conditions of the system which render it more or less susceptible to this special infection.

(b) Psoriasis is one number of a group of parakeratoses to which seborrhœa corporis and, in part, eczema seborrhœicum belong.

(c) It is most probably due to an external microbial infectious agent.

*Le Massage Plastique dans les Dermatoses de la Face.*

Par le DR. RAOUL LEROY. 2<sup>m</sup>e Édit. Paris: C. Boulangé.  
1909. 8vo. Pp. vii. + 214.

MASSAGE has been recommended and practised in dermatology for nearly thirty years by various dermatologists, and the indications for its use are based upon rational conceptions.

M. Jacquet has especially appreciated the therapeutic value of massage in certain diseases of the skin, and Dr. Leroy, in the *brochure* before us, communicates the results of his own work, following the lines laid down by Jacquet, under whom he studied.

The method is especially applicable to acne, and good effects can, undoubtedly, be obtained by its use. Several photos of patients under the treatment illustrate the text, to which we must refer for fuller details.

*The Baby's World.* The Practical Magazine for Mothers.

Edited by J. JOHNSTON MACGREGOR, M.D., F.R.C.S.  
Vol. II. No. 7. November, 1910.

IN these days of higher education for women one frequently hears expressions on the astonishing ignorance of the modern girl in domestic matters; yet never, per-

haps, was there a time when the necessity for knowledge in this—woman's own particular sphere—was of more vital importance. Hence the need for some such magazine as the one before us would seem to be indicated. " 'The Baby's World,' " we read, " aims at being a never-failing source of information with regard to everything a mother requires to know about herself, and about the proper feeding, clothing, management, and education of her children; a trustworthy guide and a sympathetic friend in all difficulties and troubles of the home." And to judge by the number before us this aim is worthily followed and upheld.

To many practical and interesting articles on such intricate subjects as "How to Wean a Baby," "Chills and Chest Ailments in the Nursery," "Baby's Trousseau," "The Nursery Meals," &c., are added articles of a lighter character, as well as short stories and verses of a kind sure to find acceptance in the nursery.

"The Baby's World" is attractively got up, excellently printed on art paper, and profusely illustrated with subjects dear to the heart, feminine and maternal. Its price is sixpence net.

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*A Prescriber's Companion.* By THOMAS P. SAVILL, M.D.; late Physician to the West End Hospital for Diseases of the Nervous System. Fourth Edition, revised by the Author, assisted by CHARLES F. HARFORD, M.D. London: Henry J. Glaisner. 1910.

As this is the fourth edition of the late Dr. Savill's "Prescriber's Companion," it must presumably have proved useful. The miscellaneous information that it contains within the compass of a small-sized pocket-book is certainly wonderful, though one finds it hard to realise that a small page on serum and vaccine therapy, or half a page on massage—to select at random a couple of the subjects dealt with—can be of use to any one. The collection of prescriptions seems to us to be the main justification for the existence of the book. The formulæ

have evidently been selected with care. A list of antidotes for the commoner poisons and a table of doses of the more powerful drugs in general use enhance the value of the booklet as a pocket companion.

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*Dawn of the Fourth Era in Surgery.* By ROBERT T. MORRIS, A.M., M.D.; Professor of Surgery in the New York Postgraduate School and Hospital, &c. London and Philadelphia: W. B. Saunders Company. 1910.

THE articles of this collection of papers, dealing chiefly with the operative treatment of the appendix and gall-bladder, were originally published in medical journals.

Having passed through the Heroic, Anatomical and Pathological Eras, we are now, according to Mr. Morris, at the dawn of the fourth, or Physiological, Era in Surgery, with all eyes turned to the work of Metchnikoff and Wright.

We are inclined to think that the advice given by Mr. Morris, when dealing with the subject of the operative treatment of appendicitis, savours too much of the Heroic Era, and that the principle of "get in and get out," with its suggestion of indecent haste, is open to abuse. In Europe we still hold the appendix in some reverence, and prefer to treat it on the principle of "Festina lente."

We have no doubt that the editing of these papers in book form will please many, though the opinions expressed may not meet the approval of all.

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*Hints for the General Practitioner in Rhinology and Laryngology.* By JOHANN FEIN, Privatdocent at the University of Vienna. Translated by J. BOWRING HORGAN, M.B., B.Ch. London: Rebman, Ltd. 1910. Cr. Svo. Pp. xvi + 223.

THIS small book, which emanates from the Viennese School, reflects the thoughts and methods current there to a marked degree, and a wonderful amount of informa-

tion has been compressed into a small space and put in a new and convincing manner. The impression conveyed to the reader is as if one was listening to a teacher addressing his class with a patient before them, and explaining as he goes along the significance of the various appearances; the descriptions seem to fit in naturally as the various cavities are brought into view. All work of such a nature as to involve a long course of special training is omitted, and the simplest methods of examination are detailed—in fact those which are possible for any one who is prepared to learn the use of the reflector, speculum and mirror. Without these simple aids it is naturally impossible to see into the nasal and laryngeal regions.

Every student should read this short book, and many a practitioner would add to his ease of mind and happiness if he would, or could, carry out the easy manipulations therein contained.

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*Hydrotherapy.* A Work on Hydrotherapy in General, its Application to Special Affections, the Technic or Processes Employed, and the Use of Waters internally. By GUY HINSDALE, A.M., M.D.; Secretary of the American Climatological Association, &c., &c. Illustrated. Philadelphia and London: W. B. Saunders Company. 1910.

THIS is an almost unreadable book. Its 466 large octavo pages largely consist of trite truisms told in a most uninteresting way. We get page after page of illustrations, mostly of apparatus, such illustrations as the sellers of surgical instruments supply as advertisements. The reader goes from chapter to chapter and is more and more disappointed. Under the heading "General Hydrotherapy" we do not get a scintilla of fresh information, and under "Special Hydrotherapy" we meet with only scrappy, useless notes, such as are familiar to readers of the advertisements of "backache pills" and "buncombe beans." Not one of these scraps is satisfying or could be

of any service to a physician treating typhoid fever, scarlatina, pneumonia, or any other acute or chronic disease. Even more exhausting are the chapters "Crounotherapy." But happily the end was at hand, and we read no more that day, nor since, of this ponderous tome "Hydrotherapy."

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*Physiological Principles in Treatment.* By W. LANGDON BROWN, M.A., M.D. Cantab.; F.R.C.P.; Physician to the Metropolitan Hospital; Medical Registrar and Demonstrator of Physiology, St. Bartholomew's Hospital, &c. Second Edition. London: Baillière, Tindall & Cox. 1910. Cr. 8vo. Pp. viii + 392.

HAVING favourably noticed the first edition of this work so recently as June, 1909 (Vol. 127, Third Series, No. 450, page 423), it is only necessary to call attention to the issue of a second edition within the short space of two years. This fact alone would go to show that the book has filled a distinct gap in medical literature.

The author tells us in his preface to the new edition that the alterations are mainly in matters of detail, though the sections on movements of the stomach, endogenous purins, intestinal intoxications, and irregular action of the heart, have been in part rewritten. A new and fuller index has also been prepared.

We have pleasure in reiterating the opinion expressed when reviewing the former edition, that this is the type of book which a student should carry with him from the physiological laboratory into the wards. It is a cheap book, the price being five shillings net.

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*The Physiology of the Special Senses.* By M. GREENWOOD, Junr., M.R.C.S., &c. London: Edward Arnold. 1910. Pp. vi and 239.

THE book consists of twenty-one chapters, the first of which is introductory. Then follow three chapters on

Cutaneous Sensations, one chapter on Taste and Smell, two chapters on the Sense of Position and Movement, two on Hearing, and twelve on Vision. That is to say, more than half the whole book is devoted to the last-named subject.

The author expresses a hope that the work may be useful to students of Psychology who desire information concerning the Physiology of the senses, to those who pursue Physiology as a branch of liberal education, and also to those presenting themselves for certain higher professional examinations.

From a careful perusal of the book it does not seem that any of those classes will find it satisfactory. The work is not mature, nor is it well balanced. It lacks in many instances clearness of expression, has apparently been written in a hurry, and is liberally provided with typographical errors.

The following are instances:—Page 14, "Herin" for "Hering"; page 15, "vasrodilatation" for "vasodilatation"; page 21, "on" for "of"; page 50, "that" for "there"; page 68, "sense" for "senses"; page 107, line 10 from top, "are" for "is," but the whole sentence requires remodelling; page 132, lettering of triangle R. C. V. should be R. G. V.; page 138, "restricted" for "unrestricted"; page 187, "which" omitted from line 2; page 194, "white-red" for "white-black" in line 9 from bottom; page 212, "or" for "nor." More might be given, but these will suffice. Of instances in which the whole meaning of a sentence is altered or blurred by want of care in punctuation, two may be given—page 80, "The importance of the power of opening the (Eustachian) tube in normal hearing is well shown by the effect on this sense of exposure to compressed or rarefied air." A comma after "sense" makes it intelligible. Again, on page 220, the following occurs:—"D is a thread attached to the frame EE, two threads attached to the parallelogram and moving with it." Transposition of the comma to follow the word "frame" gives a meaning to the sentence, but before this is recog-

nised by the perplexed reader, his frame of mind had better be left to the imagination. Want of clearness is shown in the following:—Page 226, “When the lower point is farther off the results were not so good but generally better for the smaller angular distances.” Holmgren’s test is described (page 146) in the following sentence:—“The subject is given a large number of skeins of wool, and is told to separate out the reds and greens.” Hard upon this comes the commentary—“This test is, in my opinion, altogether inefficient.” If carried out as the author states, the test would well deserve his condemnation; but nobody should carry it out in this way. When, however, the author of an advanced text-book is so lax about its description, it is no matter for surprise that those who employ the test technically and empirically, get unreliable results.

The description of Holmgren’s test is not typical of the whole book, but it is of much contained in it. Exception should be made of the chapters on Cutaneous Sensations and on Visual Adaptation, which are distinctly good.

It is clear from these that the author is capable of better work, and it is to be regretted that lack of ordinary care has marred it on this occasion.

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*Anæmia.* By PROFESSOR DR. P. EHRLICH and DR. A. LAZARUS. Part I. Vol. I. Normal and Pathological Histology of the Blood. Second Edition, enlarged, and to a great extent re-written by DR. A. LAZARUS and DR. O. NÆGELI. Translated from the German by H. W. ARMIT, M.R.C.S. London: Rebman, Ltd. 1910. Svo. Pp. xiii + 218.

WE feel sure that many will welcome the appearance of this translation of Ehrlich’s classical work on hæmatology. The work itself is so well known to all who are interested in diseases of the blood that it is quite unnecessary for us to criticise the doctrines it contains. The translator has done his part extremely well, and has rendered into clear and readable English a German text which many students

find rather involved. The publishers are to be congratulated on the general get-up of the book. It is well printed on unusually good paper, and the five coloured plates are excellently worked. The volume contains four chapters. The first two, by Lazarus, deal with the methods of examining the blood and with the red blood corpuscles respectively. The third, by Naegeli, is devoted to a comprehensive survey of our knowledge of the white blood corpuscles. The dualistic theory is strenuously maintained against all comers, and in the opinion of the writer is accepted as definitely proved. A short terminal chapter on blood platelets and hæmoconia is contributed by Lazarus. This short statement of what the book contains is, we hope, sufficient recommendation. The author's name is, in our opinion, enough to guarantee it a good reception in its English dress.

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*Illustrated Guide to the Museum of the Royal College of Surgeons, England.* By ARTHUR KEITH, M.D.: Conservator of the Museum. London: Printed for the College. 1910. 8vo. Pp. vi + 132.

THE great Museum, to the formation of which John Hunter devoted so much of his genius and his life, and which is now housed in the Royal College of Surgeons, England, has become in the course of its development almost as much of a national institution as the British Museum itself. Many others besides the members of the faculty visit this museum to study the curiosities that it contains, and no student of biology, in the widest acceptance of the term, can afford to neglect its treasures. To those interested in the life and work of Hunter his museum has a special attraction, since many of the specimens are associated with interesting reminiscences of the founder's life. The skeleton of Charles O'Brian, which is said to have cost Hunter £500, brings vividly before us the times and ways of the body-snatchers, when, as Sir Astley Cooper said, there was no body buried in England that could not be bought.

Dr. Keith, in the Guide before us, gives a general indication of the distribution of the specimens in the museum, noting more particularly those of interest to the casual visitor and elucidating their relation to the collection as a whole. These descriptions and the admirable illustrations give the Guide a value to those who have not the facilities for frequently visiting the museum, and as one of those we thank Dr. Keith for his work and congratulate the College on the admirable way in which he has carried it out.

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*The "Wellcome" Photographic Exposure Record and Diary,*  
1911.

THE "Wellcome" Exposure Record and Diary is essentially a book for the pocket, and is the most handy epitome of photographic art and practice, up-to-date, that one could wish to possess. The price, in the British Isles, is only one shilling.

The articles contained in the literary portion of the 1911 Edition, which is just published, are all of a highly interesting and useful character, and serve to help photographers over the technical difficulties of exposure, development, &c. They include directions concerning negative making, factorial, time, machine, tank or stand development, bromide printing, toning and intensification. Nor are such processes as colour photography and the making of Ozobrome or Bromoil prints forgotten.

In the special article on colour photography a simplified method of producing the necessary solutions is given.

Such ample provision is made for memoranda as to obviate the necessity for any other note-book. It is neatly and strongly bound in green cloth boards and fitted with wallet, pencil, and clasp.

In the latter portion of the book the problem of exposure is taken up in a very thorough and ingenious manner. The facts and data which bear upon this important subject are carefully tabulated, correlated and arranged. To the inside of the cover is attached the "Wellcome Exposure Calculator,"

with its movable disc, which enables the correct exposure to be determined under all conditions of light and scene by a single turn of the scale.

For the convenience of its world-wide readers and users the "Wellcome" Exposure Record and Diary is published in three editions—namely, the Northern Hemisphere and Tropics, the Southern Hemisphere and Tropics, and the United States of America. When purchasing, care should be taken to specify which edition is required.

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*A Manual of Physiology.* With Practical Exercises.  
By G. N. STEWART, M.A., D.Sc., M.D., &c.; Professor of Experimental Medicine in Western Reserve University, Cleveland, U.S.A. Sixth Edition.  
London: Baillière, Tindall & Cox. 1910. Cr. 8vo.  
Pp. xx + 1064.

THE sixth edition of Stewart's "Manual of Physiology" fully sustains the high reputation which the book has already achieved. As in previous editions, the arrangement of the subject-matter is the time-honoured one of taking the chapters on the Blood and Circulation immediately after the introduction on the properties of living matter. Though the plan is not original, the book is never common-place, for on every subject touched, the stamp of the author's individuality is impressed. The main features indeed are due to his practical turn of mind, and are seen not alone in the choice and treatment of the subjects, but also and chiefly in the series of valuable exercises, carefully devised, which are given after the several chapters.

About 150 pages of new matter have been added, the additions being distributed pretty generally over the whole work.

The chapters on Metabolism, Digestion, and the Central Nervous System receive the largest accessions, but considerable additions have also been made to those on the Circulation, Respiration and the Special Senses.

A dozen new practical exercises have likewise been in-

troduced—namely, one on Blood, four on the Circulation, three on Respiration, one on Electro-physiology, two on the Nervous System, and one on the Sense of Pain. On the other hand, five of the old exercises have been omitted, no less than three of these being from the physiology of muscle and nerve. This is as it should be, and more might be done in the same direction with advantage, not alone in this but in other kindred works.

Professor Stewart is in a minority amongst physiologists on the question of the advisableness of combining accounts of practical exercises with a systematic description of the subject. But, despite differences on this point, everyone will admit that both sections of his book are admirable.

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*Hygiene of Infancy and Childhood.* By A. DINGWALL FORDYCE, M.D., F.R.C.P. (Edin.). Edinburgh: E. & S. Livingstone. 1910. Pp. 289.

It is refreshing, in the stream of text-books which in wearying sameness flow daily from the press, to come across a book so original in conception as that of Dr. Fordyce. The fact that he touches on "Peter Pan" in the introduction and on Mendelism in the appendix shows that his range of interest is wide indeed!

His aim, as stated by himself, is to provide a book which will put the busy practitioner *au courant* with the newest theories in the various branches of pædiatric medicine, and in this effort he has largely succeeded. Childhood is looked at from various points of view—that of predisposition, of environment, of food supply, of age, &c.; and the causes of disease, the dangers and the peculiarities, are noted in each case.

In the chapter on food some of the latest theories regarding protein digestion are brought forward, in that on bacterial infection we get a synopsis of present-day bacteriology, and in the chapters on heredity and environment he gives us much that is worth reading from recent work in eugenics.

In the effort to cover all the ground we find, of course, many omissions and many subjects dealt with so shortly as to convey nothing to a person who is not already conversant with them. For instance, the whole subject of the modification of milk by the "percentage" method is dismissed in six lines. However, the book is not meant to be a text-book, and will form most interesting reading for those wishing to bring themselves up to date with much of the current literature on the subject. An appendix gives a good short review of the theories of Mendel, Weissmann, Galton, and Pearson, with some good criticisms thereon, and an excellent bibliography makes up for many of the unavoidable omissions from the text.

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*Mind and Health.* The Mental Factor and Suggestion in Treatment, with Special Reference to Neurasthenia and other Common Nervous Disorders. By EDWIN ASH, M.D. London. London: H. J. Glazier. 1910. Pp. 119.

THIS little work is a statement of the power of suggestion in the treatment of nervous and mental diseases. It sets forth the value of this method in cases of neurasthenia, and advocates it with much force. On page 70 one reads of the direct method of using verbal suggestion. "With regard to the actual application of suggestion in treatment the practical technique to be followed must be carefully varied, according to circumstances." In its simplest form suggestion may be brought to bear on a patient by placing him in a comfortable chair, telling him to close his eyes, relax every muscle as far as possible; all distracting noises should be avoided, and the patient be instructed to fix his attention solely and earnestly on what is being said to him by the physician, who, in a quiet, persistent voice enumerates the particular symptoms for which relief is sought, and gives reasons why these should be about to cease, or the physician may resort to a conversational method described.

The work contains little that is new, and the enumeration of cases of hysterical palsies and paraplegias and fixed joints cured by the suggestions of surgical treatment is known to most surgeons of experience.

When the author devotes himself to the advocacy and use of treatment by suggestion in these hysterical and neurasthenic cases we have nothing but praise for his methods. When, however, he advocates the suggestion method in cases of pronounced insanity with suicidal tendencies we think he goes beyond the range of prudence or justness to his patient's interests.

Dealing with cases of "threatening insanity," he says—"I differ very strongly from those physicians who imagine that once the mental balance has been deranged nothing can save the patient from an asylum. On the other hand, I am perfectly confident that if the early disturbances of balance be corrected it is quite possible to ward off a threatening attack of insanity and to preserve the patient's reason, possibly only for the time I admit, but sometimes for good." This is somewhat dangerous teaching if it were but merely a counsel of perfection. Most cases of insanity in their incipient stages are dealt with more or less by suggestion, but the "balance" is decidedly upset. The safest place for the case is the asylum, where the person is subjected to the suggestions most likely to correct his morbidity of mind. To depend on suggestion alone as a means of treating commencing mania or melancholia and to delay hospital treatment for such a case in the faith of the efficacy of the powers of suggestive treatment alone is to run grave risks without any corresponding advantages.

Physicians are not often consulted in these cases, unfortunately, till the symptoms are so pronounced that suggestion can be of little use.

In paranoid states constant and skilful suggestion might be of more use, provided the delusions had not acquired their fixed and constant characteristics, but even here delays may become tragedies to those about such a patient. The book is temperate in its advocacy

of hypnotism in conjunction with suggestion, but speaks more of electrical treatment together with suggestive influence. Many electrical therapeutical methods owe their curative influence entirely to suggestion. Who has not heard of the efficacy of electric belts in which there was no electricity, of the cure of rheumatism by the carrying of a potato in one's pocket, or of the cure of drunkenness by the suggestion of sobriety or enforced abstinence, coupled with some simple, and it is to be hoped harmless, medication administered in as ostentatious and obvious a manner as possible?

In conclusion we can say for the author of this work that he has advocated the claims of treatment by suggestion in a temperate and physician-like manner. That he is inclined to set great value upon a method which is daily put in practice by the physician in an unconscious fashion is most true; but we cannot agree with him in substituting this method for others of more certainty when accurate diagnosis has cleared up the condition and nature of the patient's case.

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*Diseases of the Joints and Spine.* By HOWARD MARSH, M.A., M.C. Cantab.; F.R.C.S.; Professor of Surgery in the University of Cambridge. New Edition, thoroughly revised by the Author and by C. GORRISON WARSON, F.R.C.S.; Assistant Surgeon to St. Bartholomew's Hospital. London: Cassell & Co. MCMX. Cr. 8vo. Pp. xv + 632.

It is with much pleasure that we welcome the appearance of the third edition of Marsh's "*Diseases of the Joints and Spine.*" It is now twenty-four years since the book first saw the light, and during that period it has made for itself an established position as an authoritative work on the subject with which it deals. The present edition is considerably enlarged as compared with the one with which the present reviewer was familiar in his student days; but it still retains its handy size and form. Two new chapters dealing with septic arthritis and with

arthritis in specific infective diseases have been introduced, the latter being perhaps of special importance to the general practitioner as embodying all the recent work on this formerly rather obscure subject. A useful chapter on syphilitic arthritis is included and the frequency of the condition is insisted on. Our own experience is that syphilitic synovitis in the secondary stage is by no means rare, though many writers do not refer to its existence. The tendency for synovitis to be bilateral in hereditary syphilis is not, as far as we could find, mentioned, yet its painless and bilateral character often gives a clue to a correct diagnosis. The chapter on Arthritis Deformans is clear and not overloaded with too much detail. Coxa vara is carefully dealt with, and the chapter is well illustrated; but we could find no reference in the index to the opposite condition of coxa valga which has somewhat recently been described. We notice that the early operative treatment of tubercular sacro-iliac disease is commended, and that an account of the best method of approaching the joint in such cases is given. The results obtained by early operation undoubtedly compare favourably with other methods of treatment. The general appearance of the book is excellent. The printing is clear and the illustrations are numerous and well executed. We cordially recommend the volume to the attention of our readers.

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*Insanity.* By E. E. YOUNGER, M.D. Brux.; M.R.C.P. Lond.; D.P.H., &c.; Senior Physician, Finsbury Dispensary; late Senior Assistant Medical Officer, London County Asylum, Ilanwell; formerly Assistant Medical Superintendent, Metropolitan District Asylum, Caterham. Second Edition. Revised and Enlarged. London: Baillière, Tindall & Cox. 1910. Cr. 8vo. Pp. viii + 124.

THE publication of a second edition of this little work is a proof of its usefulness. It fills a gap in the book-case of the busy general practitioner. It is not a pretentious

volume of the diagnosis, symptoms and ætiology of mental disease, but it places the main facts and legal difficulties met with in dealing with acute recent cases of insanity in a clear light, and will be found of much use by medical men who at times come across mental cases in their practice, and who have had little previous experience of their care and treatment.

Part II., dealing with the various forms of insanity, is little more than a repetition of the early classification of Esquirol, but it is clearly put, and the types of insanity mentioned are well defined and their clinical characteristics described by a physician who has evidently had much experience in the recognition and treatment of acute insanity. The work is in no sense a book to be relied upon for exhaustive or detailed description of the less defined psychological entities of disease. But it is not intended as an exhaustive treatise, but merely as a compendium of useful information readily acquired and helpful in cases of emergency. It should commend itself to police surgeons and those who are called upon to suddenly diagnose a mental case. The legal information contained in this little book is accurate, and deals with the points most useful to the certifying medical man called hurriedly to see a case, probably arrested in the streets and brought to the police station. It deals with the lunacy law of England and of Ireland, and points out clearly the law as regards the reception of insane patients into private houses.

We can strongly advise every busy medical man to possess a copy of this little work.

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*Transactions of the Thirty-Second Annual Meeting of the American Laryngological Association.* New York. 1910. Pp. vi + 277.

It is always a pleasure to peruse the papers read at the annual meeting of the American Laryngological Association, as the various speakers unite in the effort to make their communications interesting. Three papers

on the use of vaccines in nose and accessory sinus disease are worthy of study, though, for the most part, the authors agree that this method of treatment does not produce the brilliant results which were hoped for.

One of the reasons offered in explanation of this is of interest as an explanation also of the difficulty of curing discharges from cavities in the lining membrane of which mucous glands occur. It is as follows:—That the chronic irritation of the purulent discharge of the bacteria which cause the suppuration sets up a habit of over-secretion in the glands, which continues even if we succeed by vaccine or other treatment in sterilising the offending cavity. This theory was based on the facts observed, and when, after suitable vaccination, no more of the bacteria could be isolated. The discharge, though of a less purulent character, nevertheless remained about the same in quantity, and after a short time relapsed to its former state. It may here be suggested that this theory might be applied to other regions of the body—for example, the uterus.

A most instructive paper on neurosis of the sphenopalatine ganglion was read by Dr. Sluder, who has made exhaustive studies of this nerve centre in relation to neuralgia, asthma, and hay-fever. The fact that Meckel's ganglion is within a quarter of an inch of the nasal mucous membrane is an anatomical fact overlooked by many surgeons. So near is it that cocaïn applied directly over the ganglion will at once stop neuralgia, supposing the cause to be therein situated. Attempts have also been made to remove the ganglion through the nose.

There are many other papers of equal interest, but the above gives an idea of the varied character of the subjects before the meeting.

PART III.  
MEDICAL MISCELLANY.

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*Reports, Transactions, and Scientific Intelligence.*

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ROYAL ACADEMY OF MEDICINE IN IRELAND.

President—SIR CHARLES BALL, F.R.C.S.I.  
General Secretary—J. A. SCOTT, M.D., F.R.C.S.I.

SECTION OF OBSTETRICS.

President—H. JELLETT, M.D., F.R.C.P.I.  
Sectional Secretary—G. FITZGIBBON, M.D., F.R.C.P.I.

*Friday, October 28, 1910.*

THE PRESIDENT in the Chair.

*The Late Dr. Lombe Atthill.*

SIR WILLIAM SMYLY proposed—

“That the Obstetric Section of the Royal Academy of Medicine in Ireland desire to convey to Mrs. Atthill and the other members of the family of the late Dr. Lombe Atthill their sorrow at the loss of so respected and esteemed a member of this Academy, to whom the Obstetrical Section of this Academy is especially indebted.”

He said the late Dr. Atthill was a most enthusiastic upholder of that Section of the Royal Academy of Medicine in Ireland. He was also a President of the Academy. He had been a member of the old Obstetrical Society long before the Academy was thought of. Dr. Atthill was not one of those modern gynæcologists who were under the impression that they could not learn anything from anybody else. He was a most regular attendant at the meetings of that section, and almost always joined in the discussions. The enthusiasm which he cast into his work infected all who came in contact with him. He (Sir William) remembered how, when acting as Dr. Atthill's assistant at the Rotunda, his example

and precepts stimulated him to an interest in obstetrics and gynæcology. Dr. Atthill had been spared to them for very much longer than the ordinary span of human life, and up to last summer he was still full of interest as to the progress of Medicine and as to the improvements and advances in Obstetrics at the Rotunda Hospital.

DR. HORNE said he rose with deep feelings to second the resolution. As an old assistant, with Sir William Smyly, he could bear testimony to Dr. Atthill's great power and the care he took of obstetrics and gynæcology. It was he and the late Dr. Kidd who were the pioneers of gynæcology in this country. When he became Master of the Rotunda, gynæcology was practically unknown. He was the first to establish a gynæcological department, and he sent forth a little book which was, he might say, almost the first light in the British Isles that they had on gynæcology.

THE PRESIDENT put the resolution, which was passed in silence.

*Specimens—(a) Intramural Myoma. (b) Myomatous Uterus associated with Pregnancy.*

THE PRESIDENT exhibited specimens of the above. The first specimen was, he said, of interest as showing how much endometrium could be removed during a myomectomy and still leave a uterine cavity. While the myoma shelled out quite easily, he found as it came away that he brought away the whole of the anterior wall of the uterine cavity with it. The mucous membrane could be seen in the specimen. He hoped to have brought down a microscopical section of the tumour to show any changes that had taken place, but, unfortunately, the specimen was sent too late. The section was a frozen one, and the mucous membrane fell off. The second specimen of myoma associated with pregnancy was one of greater interest. The myoma was situated in Douglas' pouch, and the pregnancy lay above and in front of it. The first question that suggested itself was, why the specimen was on the table. It was not there through any mistaken diagnosis, or want of advice to the patient to keep it. She had been sent up to him complaining of myoma. He found she was three months pregnant, and advised her to go home and have an operation after her confinement. She came back in a fortnight and asked if the tumour would get any bigger, and if the operation would be more dangerous at full term. His

opinion was that it would probably get bigger, and that the operation would be slightly more dangerous. She would not wait, and the doctor who sent her advised her to have the operation at once. He thought he was quite justified in conforming with the patient's wishes, and that she had a right to decide the matter for herself.

DR. E. HASTINGS TWEEDY, referring to the specimen of total extirpation in pregnancy, suggested it might have been possible to remove the myoma and close the uterus, as in a Cæsarean section. It had been done on several occasions, and it appeared to him that there would have been a chance of successfully doing it in that case. He would like to know if the President, at any portion of the operation, had contemplated it. It would not have prevented a subsequent hysterectomy if he had failed to enucleate it from its bed.

THE PRESIDENT, in reply, said he had contemplated the possibility of an enucleation. In a similar case he did enucleate a myoma out of a pregnant uterus, and the woman went on and aborted in a fortnight, but in it the myoma was above the pregnancy. In the present case it was below the pregnancy. The uterus was also much more vascular, and taking this into consideration, together with the position of the tumour, he did not consider it advisable to do an enucleation, particularly as the patient was anxious to have the operation done with the least possible risk. If it had been above the pregnancy he should have enucleated it.

#### *Carcinoma of Fallopian Tube.*

DR. E. HASTINGS TWEEDY said his specimen was one of a rare malignancy of the Fallopian tube. In September last, Dr. Alban Doran asked him if he had ever seen malignant disease of the Fallopian tube, and he replied, Never. Dr. Alban Doran said there had been only one case reported in Ireland, and only one hundred in literature. At the very time they were speaking, the patient was in hospital, and presented a most typical example of the condition. Her menstrual history was irregular. She had missed two periods. She was thirty, and had had one child eight years ago. She had had repeated hæmorrhage two months previously, which had ceased. The tumour was to the right, and behind, the uterus. They diagnosticated tubal pregnancy, and it looked like it when they opened the abdomen. A hand was passed down into

Douglas' *cul-de-sac*, and a large tumour was removed: this was only organised blood-clot. On pursuing the operation further they pulled up the right tube, in which there was a fungating mass which had made adhesions to both ovaries and to the small intestines. He removed it, only taking a small piece of the tube, and leaving both ovaries. She was anxious to have another child. Dr. Rowlette reported carcinoma of the ovary. He advised her to undergo another operation three weeks after the first. She said she hoped she would not lose her womb. He said he thought she would. She wept a good deal, but he was very firm, and said there was no use operating at all unless she gave him a free hand. She consented, and on again opening the abdomen everything appeared normal. He did not feel justified in doing very much. He took away the ovary at the side of the cancer, and the tube, and part of the tube at the other side, and left her one ovary and a good stump of Fallopian tube. She had been crying ever since because he did not remove her womb.

DR. ROWLETTE said the specimen was very friable. On handling it came asunder, and it was at first very difficult to get a section to judge from. There was no doubt that the growth was carcinoma. It showed the appearance which was generally found in cancers of the tube very exactly. He handed round some microphotographs of Mr. Alban Doran's which might almost have been taken from the tumour exhibited. Some parts of the tumour had lost altogether the adenomatous or papillomatous look which the picture showed, and the cancer cells were so closely packed as to suggest that the growth was sarcoma. Several sections, however, from different parts showed a distinctly carcinomatous structure.

THE PRESIDENT said the specimen was one that not much could be said about, on account of its extreme rarity. He congratulated Dr. Tweedy in this case for doing a theoretical wrong in order to comply with the wishes of his patient. He himself had done the same in the other case; but in both cases he thought they had practically done quite right.

DR. TWEEDY, in reply, said he had not the faintest notion that the cancer would ever return, and if it did, he had not the faintest notion of where it would return. It was adherent to both ovaries, intestines, and Douglas' *cul-de-sac*. He could not eviscerate the woman, and he could not find the part of the intestine where it was adherent, when he re-opened, nor the part

of the ovaries. There was nothing to show any lesion in the abdomen when he re-opened, and he felt the removal of the uterus would be an ineffectual operation.

*The President's Address—Some Continental Experiences.*

THE PRESIDENT began an address introductory to the Session by congratulating the Fellows on the increased attendance at the meetings during the past year. He also referred to the fact that the Council consisted altogether of men who actively assisted at the Sectional meetings. He then went on to refer to his experiences in the course of a recent visit to various Continental Cliniques. During his visit he had seen Bumm, Mackenrodt, Strassmann, and Landau at Berlin; Wertheim and Schauta and their assistants, particularly Dr. Weibel, at Vienna; Klein, Löderlein, and Amann, at Munich; and Kocher and von Felenberg at Bern. In Paris he found it impossible to see any of the leading gynæcologists with the exception of Pinard, who, however, was not operating on the day of his visit to the Hôpital Baudelocque. He referred with special appreciation to Pick's collection of specimens, and of sections in the Landau Clinique in Berlin, as well as to the operations of the different Professors. The anæsthesia and aseptic practice in Berlin and Munich was uniformly good; in Vienna so much attention did not appear to be paid to them. Scopo-morphia was used before almost every operation at the two former places. In Bern he was told that they were afraid of scopo-morphia, but that veronal given the night before the operation, and again an hour before the operation, to a very marked extent removed post-operative vomiting. In conclusion, he said that although the Dublin Hospitals were not so large, nor their teaching so well organised as was the case abroad, he considered that in other ways they compared very favourably with similar institutions on the Continent. The Dublin nursing was better, their asepsis was as good as the German and much better than the Austrian, and Irish operators possessed to a far higher degree than Continental operators the power of learning from others, and of adopting the practices of others, where they were proved to be better than their own. At the same time, the Continental operators were more rapid, and their technique and theatre arrangements were more perfect, due to the fact that they had more facilities and greater opportunities.

SIR CHARLES BALL said he had great pleasure in proposing a vote of thanks to the President for his admirable address. It was pleasing to them to know that notwithstanding the excessive heat to which he was exposed during his journey, his powers of observation remained unclouded. Even in the short time he had at his disposal he had seen a great deal, and profited largely by what he saw. He felt sure that if they could all spend an occasional holiday in a similar way, it would do much to improve their work and to better medical matters in Dublin. He was incompetent to speak on the special details of the address, but even to the general surgeon there were many points of interest, more particularly the allusion to giving veronal as an aid to general anæsthesia, and he felt sure that many of them would be glad to try it.

DR. PUREFOY expressed great pleasure in seconding the vote of thanks. A trip to the Continent had a great many attractions, but it had also a great many distractions, and they were all glad to see their President back safe and sound.

THE PRESIDENT, in acknowledging the vote of thanks, said he was glad that Dr. Purefoy had alluded to the distractions of the trip, which would account for the lacunæ in his address.

*Scopolamine-Morphine Anæsthesia in Labour.*

DR. B. H. SOLOMONS (for himself and Dr. J. R. Freeland) read a paper on the above.

DR. TWEEDY said he thought they would agree that he was happy in his present Assistant Masters. The paper was one of the most interesting that he had heard read at the Section for a long time. There was no question that Midwifery was a wearing profession, not because of the serious portion of the work, but because of what one might call its trivialities. It was the patient who complained bitterly and loudly that got on the obstetrician's nerves; the patient with primary uterine inertia, who sent for the doctor when the os was the size of a threepenny bit, and asked to be delivered at once. He had stated on another occasion that it was the nurse, and not the patient, who should be treated on such occasions. It was nearly always the nurse's fault when the patient got into that condition of hysteria; and he had often longed for some means to quiet the patient so that the whole household might be rested. He thought they had that means now in scopolamine. It appeared to him that they could give small

doses, and tell the nurse to watch the patient ; and as far as the series dealt with went, it seemed to be an absolutely safe drug. He had personally used it largely in private practice, and had always been pleased with it. He had been particularly nervous about the consequences that might follow if birth took place shortly after its administration. It would be a very serious thing if it was found that the child seriously suffered because it happened to be born an hour after the scopolamine was used. He thought the cases clearly pointed to the fact that it had very little influence on the child. Probably it was the morphine that was the greater influence, as scopolamine was closely allied to the belladonna group, and belladonna could be taken by an infant in comparatively large doses, while morphine was a deadly poison to a newborn child. If a child did not breathe freely when it was born, it apparently could be very easily made to breathe by artificial respiration.

SIR WILLIAM SMYLY said if they could get rid of all the pain and anguish, the millennium would have come for obstetricians. He had not used scopolamine in enough cases to form an opinion. He had read a lecture by Dr. Steaghsny, of Vienna, given in August last, in which he gave his opinion of scopolamine-morphine. He said that the general mortality due to this treatment had been 3.3 per 1,000, but Gauss says that it is now reduced to 1.3 per 1,000. Death has resulted from the smallest doses, and as late as three days after its administration. Hypalgesia is more marked than analgesia ; the patient is deceived, she feels the pains but forgets them. According to Gauss it fails altogether in 23 per cent. It is often attended by very alarming symptoms ; respirations sink to 4 per minute, whilst the pulse may rise to 150 beats, and the temperature to 102°. In some cases there is great excitement at the time of the birth, amounting occasionally to mania. Ruptures of the vagina, perineum, and about the clitoris are relatively common. It tends to prolong the second stage from one-half to three hours, and necessitates more frequent use of instruments. After delivery it is impossible to say how long the patient may slumber, and, owing to the risk of suffocation, the medical attendant must remain and not hand her over to the care of a nurse. High temperatures are common during the first days after delivery, and are liable to be confused with those due to septic causes. The lecturer's conclusion was that except in hospital practice the use of scopolamine-morphine in

normal labours had little to recommend it, and its use should be opposed as energetically as possible. He (Sir William) did not state these views as his own, as he had none, and had come to the meeting to learn.

DR. PUREFOY congratulated the Assistant Masters of the Rotunda on their admirably compiled paper. He confessed, however, that, while listening with great interest, he was not converted to anything like a favourable view of the practice. It appeared to him that, without any compensatory advantages, it introduced risks from which the use of morphine was free to a great extent. He could not recall any case in which he had cause to regret the injection of morphine. Even in the very careful and temperate statement it was still possible to gather that the risks to the patient and child were by no means inconsiderable. It was quite right that the drug should be fairly tested, and it was only in this way that they could arrive at a just view of its value. He had not used it, and from what he had heard he did not feel at all tempted to use it.

THE SECRETARY said he had no personal experience of the use of scopolamine-morphine, but he would like to repeat a statement made to him by a general practitioner in Dublin who did a good deal of midwifery. He told him that he thought scopolamine-morphine was one of the greatest improvements from the general practitioner's point of view that had been introduced in midwifery. In cases of primiparæ where patients were crying out for interference it was particularly beneficial. With  $\frac{1}{100}$  grain of scopolamine and  $\frac{1}{6}$  of morphine injections, the general practitioner was able to watch the patient a while, and then go away for an hour and do some rounds and come back. In cases without it he was kept continually at the place and worried to do something. He did not say how many cases he had had, but he had been using the drug for the last year, and found that it was of enormous benefit, and gave no bad results.

DR. ASHE said scopolamine was a synonym for hyoscine, and it was a matter of importance which form of it was used. The one generally used was the lævo-rotatory variety. Dr. Sheill had read a most important paper on the matter last Session. Hyoscine was a potent cerebral sedative and a first cousin of belladonna. The danger in the treatment was from the morphine.

DR. SPENCER SHEILL recalled his communication of twelve months ago, when he brought before the Section the first published

cases of scopolamine-morphine treatment in this country. At that time Dr. Solomons mentioned that he had used it, but had not had sufficient experience of it to warrant an opinion, although he mentioned an interesting case where the patient delivered herself with no one in the ward. He had to congratulate the Assistant Masters on the energy that they had brought to bear on the investigation since that time. He observed that they had used a foreign preparation. The *levo*-rotatory form was the much more active of the three forms, and Burroughs and Wellcome, a British firm, had given a guarantee to him that their preparation known as tabloid scopolamine, or hyoscine, was made up entirely of the *levo*-rotatory form, so that he failed to see why a foreign make was used. He also failed to see why  $\frac{1}{120}$  of a grain was used when the dose wished to be used was  $\frac{1}{100}$ . Dr. Solomons said a few women had no knowledge of pain when the child was born. In cases of administration of nitrous oxide gas, he had remarked in his paper that the patients *felt* the pain of the extraction frequently, but were not able to *remember* the pain when the extraction was complete. He had had a patient who said for a number of hours that she had not any pain, but afterwards recalled the pain acutely. He thought administration by the mouth had many disadvantages. Vomiting frequently occurred during labour in otherwise perfectly normal cases, and if the patient vomited half an hour after the administration of the drug, who could say how much of it had been vomited, and whether they should repeat the dose in full or half, or not at all. The simplicity and accuracy of the hypodermic dosage would appeal strongly to practical men. His experience as regards the effect on the *foetus* was that it did suffer from effects of scopolamine, but not having administered it without the morphine he could not say if it was due to one or both. He could not agree that it was unnecessary to watch the patient after the administration of the drug. The symptoms mentioned, such as the falling back of the tongue, were alone a sufficient reason for not leaving the case entirely in charge of a nurse. It was a very grave responsibility for a medical man to administer the drug, and then leave the patient to a nurse who may have had only six months' training; the quotations from a recent Continental paper as read to-night by Sir Wm. Smyly support this view. As to choosing picked cases in which prolonged labour was expected, how did they know in which cases to expect prolonged labour? Unless

such occurrences as dry labour might lead to this expectation, he could not tell, and even in such cases they could not tell which was going to be prolonged. There were some omissions in the paper: he had found the quickening of the pulse a very marked symptom: the dryness of the tongue due to symptoms of commencing poisoning had not been mentioned; neither had delirium: he had seen one case of delirium directly due to the treatment, and he hoped he would not see another. In conclusion, while congratulating the authors of this interesting paper, Dr. Sheill said that the riper experience, gained since his paper was published, urged him to utter a word of warning to use the drug with the utmost care in all cases. His own conclusions were:—(1) That suitable cases in which to use it are not very common. (2) That the physician shall remain in attendance after its use. (3) That, on the whole, labour is somewhat prolonged. (4) That it is not wholly free from risk to mother and infant. (5) That his success in a case of chorea gravidarum makes him desirous of trying it in eclampsia.

DR. HORNE said he had no practical knowledge of the drug, and had come to listen. He congratulated the Assistant Masters on their paper as a pure statement of facts presented for their judgment. The drug had a mortality of 1.3 per 1,000, and there were serious symptoms pertaining to it, and he asked himself if it really had any distinct advantage over chloroform and morphine. With the latter drugs they could calm a patient, and there was very little danger in their administration in pregnant women.

SIR WM. SMYLY said it was only fair to state that the lecturer whom he quoted objected to chloroform as well as to scopolamine.

THE PRESIDENT said the paper was one of the most interesting and practical that had come before them for some time. It seemed to him that the Master of the Rotunda, through his Assistants, might sum up the situation in a few words: would they continue to give scopolamine-morphine in cases in which the symptoms called for a sedative? He thought the criticisms had been directed to the use of the drug in all cases, and that they had not discussed sufficiently its use solely in cases in which there was need for it, and in such cases whether the patients got it or not there would be an increased mortality. The question was whether in those cases the mortality of scopolamine-morphine would not be less than if the case was left untreated. Whatever

conclusion they came to, he thought there could be no doubt that at the present stage they could not give a hypodermic of scopolamine-morphine, and go away. The patient must be under medical observation until the time the effects passed off.

DR. SOLOMONS, in reply, said they had no maternal mortality, and the only explanation he could offer of the deaths quoted by Sir Wm. Smyly was that either the dosage was wrong or wrong cases were selected, or the drug was not a proper one. He recalled a patient, normal in every way, who died suddenly on the eighth day; luckily she was not given scopolamine or that drug might have been blamed for the mortality. Dr. Purefoy had spoken of risks as compared with morphine: he could only say they saw none. In fact the answer to most of the speakers was that the abnormalities occurred from an injudicious selection of cases. Speaking of the safety of chloroform, in De Lee's Year Book for 1908 sixteen cases of deaths were reported. As regards continuing the drug, they certainly would.

DR. FREELAND, in reply, said that with regard to the make of the drug, they thought that if they got a good preparation it did not matter where it came from. He had once used a home preparation of hyoscyne with very bad results. If a patient vomited, they looked to see if there were any results from the scopolamine, and if there were none they repeated the full dose hypodermically; but if they saw some result, they repeated in half doses or not at all. They had not seen any increase in the pulse rate or the extreme thirst, probably because they did not push the drug to complete amnesia. They were satisfied with getting a woman asleep between pains. If they palpated the uterus carefully, and noticed the duration of the actual contraction, and the feeling of the uterus when contracting, they would probably be able to make a fair estimate of the time of labour. If they had a woman lying apparently comatose, naturally some one would have to watch her; but if they found her in an apparently natural sleep, why not leave her with a nurse? They left them after ether or chloroform lying on their backs, when there is more likelihood of the tongue falling back. As to temperature, he thought many men were very glad to visit the blame for probably septic temperatures on any drug. They did not notice any difference in morbidity one way or the other.

## SECTION OF MEDICINE.

President—SIR JOHN MOORE, M.A., M.D., F.R.C.P.I.

Sectional Secretary—F. C. PURSER, M.D., F.R.C.P.I.

*Friday, November 11, 1910.*

THE PRESIDENT in the Chair.

*President's Address.—Some Recent Clinical Experiences.*

In his Introductory Address, Sir John Moore embodied notes of a number of cases, perhaps of every-day clinical experience, but which, in his opinion, threw more or less light upon obscure features in diagnosis and pathology or illustrated some practical points in treatment. [The Address will be found at page 13.]

*Amyotrophic Lateral Sclerosis.*

By permission of the Section,

DR. BOXWELL showed a case of amyotrophic lateral sclerosis. The case was an early one, giving a history of weakness and wasting in the hands and arms of only two months' standing. The patient was a woman, aged twenty, who on admission to hospital showed the typical wasting and paresis of the hands and forearms. Her legs were also partially paralysed, with well marked "dropping" of her right foot. There was no wasting of the legs, however, and the jerks were increased in all four limbs. There was slight increase of the "jaw jerk," but no other evidence of bulbar involvement. When the patient came to hospital she could scarcely stand, and could not walk at all without assistance. She had, however, much improved, and could now walk pretty well, though the dropping of the right foot was still noticeable.

DR. MOORHEAD said the case reported by the President was the most marked and youngest case of the kind he had ever come across. He thought it was rather the exception than the rule to find an increase in the reflexes in the lower extremities. He had seen only one case of what he could regard as pure progressive muscular atrophy, in which there was absolutely no increase of the reflexes in either the arms or lower extremities.

*Three Cases of Locomotor Ataxy.*

(1) DR. O'CARROLL said the odd thing about his case was that up to two months ago the man was driving a post-car. While still driving he noticed himself staggering a little in his walk about the 1st of August. His sight had been failing since the beginning of September, and he could now see practically nothing. He had a primary atrophy of both optic discs. He had well marked myosis, and there was no accommodation for distance other than the slightest in the right eye. He had anaesthesia and slow perception of sensory stimuli. Now and again there had been some slight incontinence of urine, which he was able to stop when he perceived it. He had had a good deal of constipation, and when he had a purgative his bowel prolapsed six or eight inches with little or no distress. He was also insensitive to retained urine, as fifteen ounces had been taken away after he thought he had finished passing water. He was insensitive in the middle division of the fifth nerve to pain and touch. He had no history of lightning pains, but spoke of pains like rheumatism. He had a healthy family. There were two initial miscarriages. Eight children were alive, three died in childhood. He had no knowledge of having had syphilis, but he acknowledged that he had been in the way of contracting it.

(2) DR. COLEMAN showed a case of six or seven years' standing, the ataxy being badly marked. There was a history of lightning pains. There was Argyll-Robertson pupils, loss of knee-jerks and Romberg's sign. He had *perforating ulcer* of the foot. The ulcer began in a corn, which he cut. About six months ago a small sore appeared, which had gradually deepened. There was some suppuration but little or no pain. The ulcer was on the ball of the little toe.

(3) DR. DEMPSEY exhibited a case in a man forty-one years of age. Twenty years ago he had contracted some venereal disease, followed by a slight rash on the skin. About four years ago he became dizzy, and had to take to bed. As long as he was in bed he felt he had good power over his limbs, but he was unsteady when out of bed. Shortly afterwards his external rectus became paralysed. When he looked towards the right he saw two images. This was operated on, and relieved to some extent. He had suffered from pains, which he described as boring in character, below the knee, not shooting but stationary. The

pupil dilated when the neck was pinched. One was a little eccentric. His sensory phenomena were moderately marked. He had a little subjective anæsthesia. The fluid from a lumbar puncture taken that day showed a lymphocytosis. He had loss of heel-jerk and knee-jerk. His epigastric reflex was well marked : so was the umbilical.

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#### AUSTRALASIAN MEDICAL CONGRESS.

THE Ninth Session of the Australasian Medical Congress will be held in Sydney during September, 1911, under the Presidency of Mr. F. Antill Pockley, M.B., C.M., Edin., M.B., Syd., M.R.C.S. Eng. The Session will commence on Monday, 18th September, and end on Saturday, 23rd September. A social function will be held on the Saturday preceding. The subscription is one guinea net, except for Members residing within the Metropolitan Area of Sydney, for whom the subscription will be two guineas. The Railway Departments of Australasia will issue concession tickets to members (with wife or one lady relative accompanying the member) for the return journey at special rates on presentation of certificates in prescribed form signed by the State Secretaries of Congress. Particulars will be supplied to intending members upon application to State Secretaries. The Inter-State Steamship Companies have also consented to grant reductions in fares as in previous years. The Senate of the University of Sydney has kindly granted the use of its buildings and grounds. The Government of New South Wales has given its countenance and support to the Congress. Addresses will be given in full Congress by the Presidents of certain Sections—to be decided upon. Special Meetings of Congress will be devoted to consideration of special subjects—to be decided upon. Committees of the various Sections are in communication with the Presidents and Vice-Presidents of Sections, with a view to the early selection of subjects for consideration. The General Secretary is Arthur Palmer, Esq., M.B., C.M., F.R.C.S. Edin., 121 Bathurst Street, Sydney.

# SANITARY AND METEOROLOGICAL NOTES.

## VITAL STATISTICS.

*For four weeks ending Saturday, November 5, 1910.*

### IRELAND.

THE average annual death-rate represented by the deaths—exclusive of deaths of persons admitted into public institutions from without the respective districts—registered in the week ended November 5, 1910, in the Dublin Registration Area and the twenty-one principal provincial Urban Districts of Ireland was 15.1 per 1,000 of their aggregate population, which for the purposes of these returns is estimated at 1,151,790. The deaths registered in each of the four weeks ended Saturday, November 5, and during the whole of that period in the several districts, alphabetically arranged, correspond to the following annual rates per 1,000. In some cases, owing to deaths not having been registered within the week in which they occurred, the rates do not fairly represent the weekly mortality :—

TOWNS, &c.	Week ending				Average Rate for 4 weeks	TOWNS, &c.	Week ending				Average Rate for 4 weeks
	Oct. 15	Oct. 22	Oct. 29	Nov. 5			Oct. 15	Oct. 22	Oct. 29	Nov. 5	
22 Town Districts	16.9	17.4	16.8	15.1	16.6	Lisburn -	9.1	4.5	18.2	13.6	11.4
Armagh -	6.9	13.7	—	13.7	8.6	Londonderry	14.4	8.4	21.6	10.8	13.8
Ballymena	14.4	9.6	23.9	4.8	13.2	Lurgan -	8.9	—	8.9	13.3	7.8
Belfast -	16.3	16.0	15.3	14.4	15.5	Newry -	16.8	8.4	25.2	8.4	14.7
Clonmel -	41.0	—	35.9	5.1	20.5	Newtownards	11.4	17.2	—	28.6	14.3
Cork -	14.4	15.8	17.1	11.0	14.6	Portadown	31.0	25.8	31.0	15.5	25.8
Drogheda -	4.1	20.4	8.2	8.2	10.2	Queenstown	19.8	19.8	13.2	19.8	18.1
Dublin -	18.9	20.7	16.6	18.1	18.6	Sligo -	9.6	9.6	19.2	9.6	12.0
(Reg. Area)						Tralee -	—	63.4	21.1	10.6	23.8
Dundalk -	19.9	23.9	19.9	12.0	18.9	Waterford	21.4	29.2	13.6	7.8	18.0
Galway -	15.5	23.3	15.5	11.7	16.5	Wexford -	18.7	18.7	32.7	23.3	23.3
Kilkenny -	19.7	9.8	24.6	—	13.5						
Limerick -	15.0	5.5	21.9	23.2	16.4						

The deaths (excluding those of persons admitted into public institutions from without the respective districts) from certain epidemic diseases registered in the 22 districts during the week ended Saturday, November 5, 1910, were equal to an annual rate of 1.3 per 1,000, the rates varying from 0.0 in sixteen of the districts to 5.7 in Newtownards—one of the 5 deaths from all causes for that district being from diarrhœa. Among the 108 deaths from all causes for Belfast were 3 from measles, one from scarlet fever, and 6 from diarrhœal diseases. Of the 16 deaths from all causes registered in Cork, one was from diarrhœa and one was from diphtheria, and the only death recorded for Ballymena was one from diphtheria.

### DUBLIN REGISTRATION AREA.

The Dublin Registration Area consists of the City of Dublin as extended by the Dublin Corporation Act, 1900, together with the Urban Districts of Rathmines, Pembroke, Blackrock, and Kingstown. The population of this area is 402,928, that of the City being 310,298, Rathmines 37,047, Pembroke 28,948, Blackrock 9,013, and Kingstown 17,622.

In the Dublin Registration Area the births registered during the week ended Saturday, November 5, 1910, amounted to 211—119 boys and 92 girls; and the deaths to 147—76 males and 71 females.

### DEATHS.

Omitting the deaths (numbering 7) of persons admitted into public institutions from localities outside the Area, the death-rate was 18.1 per 1,000. The total deaths registered (140) represent a death-rate of 19.0 per 1,000 per annum. During the forty-four weeks ending with Saturday, November 5, the death-rate averaged 21.1, and was 2.8 below the mean rate for the corresponding portions of the ten years 1900-1909.

Among the deaths from all causes registered one death was from measles, 3 were from scarlet fever, 4 were from influenza, one from typhus, one from diphtheria, one from whooping-cough, one from enteric fever, and 5 from diarrhœal diseases, 4 of the latter being of children under 5 years of age. There were also 2 deaths from enteritis at this age, and 5 deaths from *gastro-enteritis*. In each of the 3 preceding weeks there had been deaths from scarlet fever, 0, one, and one; from enteric fever, one, 2, and one; from whooping-cough, 2, 5, and one; from measles,

0, 0, and 0; from diphtheria, one, 0, and 4; from diarrhoeal diseases, 10, 8, and 4; and deaths from influenza were one, 2, and one, respectively.

Included among the deaths from pneumonia (all forms) were one from lobar pneumonia and 5 from broncho-pneumonia, while 7 were attributed to *pneumonia* (not defined).

There were 29 deaths from all forms of tuberculous disease. This figure includes 18 deaths from tubercular phthisis (*phthisis*), 5 deaths from tubercular meningitis, one death from tubercular peritonitis, and 5 deaths from other forms of the disease. In each of the 3 preceding weeks, deaths from all forms of tuberculous disease had been 22, 31, and 21.

Carcinoma caused the deaths of 4 persons, and there were 3 deaths from cancer or malignant disease (undefined).

The deaths of 4 infants were due to prematurity, and the deaths of 2 infants were attributed to *convulsions*.

Seventeen deaths were from diseases of the heart or blood vessels, and 15 deaths were caused by bronchitis.

There was one death by an accident with a horse and cart.

In one instance the cause of death was "uncertified," there having been no medical attendant during the last illness; this case was that of a person aged 72 years.

Forty-six of the persons whose deaths were registered during the week were under 5 years of age (29 being infants under one year, of whom 9 were under one month old) and 29 were aged 60 years and upwards, including 16 persons aged 70 and upwards, of whom 5 were octogenarians.

The Registrar-General points out that the names of the cause of death printed above in italics should be avoided whenever possible in Medical Certificates of the Cause of Death.

#### STATE OF INFECTIOUS DISEASE IN THE DUBLIN REGISTRATION AREA AND IN BELFAST.

The usual returns of the number of cases of infectious diseases notified under the "Infectious Diseases (Notification) Act, 1889," and the "Tuberculosis Prevention (Ireland) Act, 1908," as set forth in the following table, have been furnished by Sir Charles A. Cameron, C.B., M.D., Medical Superintendent Officer of Health for the City of Dublin; Mr. Fawcett, Executive Sanitary Officer for Rathmines and Rathgar Urban District; Mr. Manly, Executive Sanitary Officer for Pembroke Urban District; Mr. Heron,

Executive Sanitary Officer for Blackrock Urban District; Dr. R. A. O'Donovan, Medical Superintendent Officer of Health for Kingstown Urban District; and Dr. Bailie, Medical Superintendent Officer of Health for the City of Belfast.

TABLE SHOWING THE NUMBER OF CASES OF INFECTIOUS DISEASES notified in the Dublin Registration Area (viz.—the City of Dublin and the Urban Districts of Rathmines and Rathgar, Pembroke, Blackrock, and Kingstown), and in the City of Belfast, during the week ended November 9, 1910, and during each of the preceding three weeks. An asterisk (\*) denotes that the disease in question is not notifiable in the District.

CITIES AND URBAN DISTRICTS	Week ending	Small-pox	Measles	Rubella, or Epidemic Rose Rash	Scarlet Fever	Typhus	Relapsing Fever	Diphtheria	Membranous Croup	Pyrexia (origin uncertain) <sup>a</sup>	Bacterial or Typhoid Fever	Erysipelas	Puerperal Fever	Whooping-cough	Cerebro-spinal Fever	Tubercular Phthisis (Phtisis),	Total
City of Dublin	Oct. 15	-	•	•	10	-	-	14	-	2	4	-	-	•	-	8	46
	Oct. 22	-	•	•	21	3	-	20	-	6	12	-	-	•	-	21	83
	Oct. 29	-	•	•	22	-	-	17	-	1	6	14	-	•	-	16	76
	Nov. 5	-	•	•	16	1	-	13	-	1	5	8	-	•	-	11	55
Rathmines and Rathgar Urban District	Oct. 15	-	•	•	-	-	-	-	-	-	-	2	-	•	•	•	2
	Oct. 22	-	•	•	3	-	-	1	-	-	1	-	-	•	•	•	5
	Oct. 29	-	•	•	1	-	-	2	-	-	1	-	-	•	•	•	4
	Nov. 5	-	•	•	-	-	-	5	-	-	3	1	-	•	•	•	9
Pembroke Urban District	Oct. 15	-	-	-	1	-	-	2	-	-	-	-	-	-	-	-	3
	Oct. 22	-	4	-	1	-	-	-	-	-	2	-	-	2	-	-	12
	Oct. 29	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	2
	Nov. 5	-	4	-	3	-	-	-	-	-	-	-	-	3	-	-	10
Blackrock Urban District	Oct. 15	-	•	•	-	-	-	-	-	-	-	-	-	•	-	•	-
	Oct. 22	-	•	•	-	-	-	-	-	-	-	-	-	•	-	•	-
	Oct. 29	-	•	•	5	-	-	-	-	-	-	-	-	•	-	•	5
	Nov. 5	-	•	•	3	-	-	-	-	-	-	-	-	•	-	•	3
Kingstown Urban District	Oct. 15	-	•	•	-	-	-	1	-	-	-	-	-	•	•	1	2
	Oct. 22	-	•	•	-	-	-	3	-	-	-	1	-	•	•	-	4
	Oct. 29	-	•	•	-	-	-	1	-	-	-	-	-	•	•	-	1
	Nov. 5	-	•	•	-	-	-	-	-	-	-	-	-	•	•	-	-
City of Belfast	Oct. 15	-	•	•	16	-	-	6	-	-	3	7	-	•	•	5	37
	Oct. 22	-	•	•	18	-	-	8	-	1	3	4	-	•	•	3	37
	Oct. 29	-	•	•	17	1	-	6	-	-	3	8	1	•	•	7	43
	Nov. 5	-	•	•	32	-	-	8	-	-	4	5	-	•	•	8	57

The Registrar of Drogheda, No. 2 district, reports:—"Five cases from one house were sent to Fever Hospital during the week. Examination of the blood pointed to Typhoid Fever. Two of those cases were covered with a very peculiar rash which led me at first to suspect Typhus."

<sup>a</sup> Continued Fever.

#### CASES OF INFECTIOUS DISEASES UNDER TREATMENT IN DUBLIN HOSPITALS.

During the week ended November 5, 1910, one case of measles was admitted to hospital, one was discharged, and 17 cases remained under treatment at its close.

Twenty-three cases of scarlet fever were admitted to hospital,

20 were discharged, there were 2 deaths, and 103 cases remained under treatment at the close of the week. This number is exclusive of 26 convalescents in Beneavin, Glasnevin, the Convalescent Home of Cork Street Fever Hospital. At the close of the 3 preceding weeks the cases in hospital had been 82, 84, and 102, respectively.

One case of typhus was admitted to hospital during the week, there was one death, and 3 cases remained under treatment at its close.

Nineteen cases of diphtheria were admitted to hospital, 21 were discharged, there was one death, and 76 patients remained under treatment at the close of the week. The cases in hospital at the close of the 3 preceding weeks numbered 59, 68, and 79, respectively.

Four cases of enteric fever were admitted to hospital during the week, 8 were discharged, and 34 cases remained under treatment in hospital at the close of the week, the respective numbers in hospital at the close of the three preceding weeks being 41, 40, and 38.

In addition to the above-named diseases, 3 cases of pneumonia were admitted to hospital, 8 were discharged, and 17 cases remained under treatment at the end of the week.

## ENGLAND AND SCOTLAND.

The mortality of the week ended Saturday, November 5, in 77 large English towns, including London (in which the rate was 13.1), was equal to an average annual death-rate of 13.1 per 1,000 persons living. The average rate for 8 principal towns of Scotland was 13.6 per 1,000, the rate for Glasgow being 14.3, and for Edinburgh, 13.0.

## INFECTIOUS DISEASE IN EDINBURGH.

The Registrar-General has been favoured by A. Maxwell Williamson, M.D., B.Sc., Medical Officer of Health for Edinburgh, with a copy of his Return of Infectious Diseases notified during the week ended November 5. From this report it appears that of a total of 63 cases notified, 32 were of scarlet fever, 12 of phthisis, 13 of diphtheria, 5 of erysipelas, and one of puerperal fever.

Among the 455 cases of infectious diseases in hospital at the close of the week were 249 cases of scarlet fever, 53 of phthisis, 88 of diphtheria, 36 of measles, 2 of chicken-pox, 6 of enteric

fever, 7 of whooping-cough, 6 of erysipelas, one of puerperal fever, and one of cerebro-spinal fever.

### VITAL STATISTICS.

*For four weeks ending Saturday, December 3, 1910.*

### IRELAND.

THE average annual death-rate represented by the deaths—exclusive of deaths of persons admitted into public institutions from without the respective districts—registered in the week ended December 3, 1910, in the Dublin Registration Area and the twenty-one principal provincial Urban Districts of Ireland was 18.1 per 1,000 of their aggregate population, which for the purposes of these returns is estimated at 1,151,790. The deaths registered in each of the four weeks ended Saturday, December 3, and during the whole of that period in the several districts, alphabetically arranged, correspond to the following annual rates per 1,000. In some cases, owing to deaths not having been registered within the week in which they occurred, the rates do not fairly represent the weekly mortality :—

TOWNS, &c.	Week ending				Aver- age Rate for 4 weeks	TOWNS, &c.	Week ending				Aver- age Rate for 4 weeks
	Nov. 12	Nov. 19	Nov. 26	Dec. 3			Nov. 12	Nov. 19	Nov. 26	Dec. 3	
<b>22 Town Districts</b>	16.2	17.9	19.1	18.1	17.8	Lisburn	18.2	22.7	59.1	13.6	28.4
Armagh	13.7	13.7	6.9	41.2	18.9	Londonderry	15.6	18.0	16.8	15.6	16.5
Ballymena	23.9	9.6	14.4	14.4	15.6	Lurgan	17.7	17.7	39.8	44.3	29.9
Belfast	16.3	17.6	17.9	14.5	16.6	Newry	12.6	12.6	29.4	21.0	18.9
Clonmel	25.6	30.8	5.1	15.4	19.2	Newtown- ards	17.2	28.6	17.2	17.2	20.0
Cork	15.8	14.4	17.1	13.7	15.3	Portadown	10.3	25.8	15.5	25.8	19.3
Drogheda	20.4	16.3	8.2	16.3	15.3	Queenstown	19.8	6.6	—	13.2	9.9
Dublin (Reg. Area)	17.1	20.3	21.0	21.9	20.1	Sligo	14.4	4.8	24.0	4.8	12.0
Dundalk	12.0	8.0	31.9	16.0	17.0	Tralee	31.7	21.1	5.3	10.6	17.2
Galway	7.8	11.7	7.8	19.4	11.7	Waterford	15.6	25.3	11.7	19.5	18.0
Kilkenny	9.8	9.8	59.0	9.8	22.1	Wexford	14.0	23.3	37.4	18.7	23.3
Limerick	6.8	5.5	5.5	23.2	10.3						

The deaths (excluding those of persons admitted into public institutions from without the respective districts) from certain epidemic diseases registered in the 22 districts during the week ended Saturday, December 3, 1910, were equal to an annual rate of 1.6 per 1,000, the rates varying from 0.0 in fifteen of the districts to 35.4 in Lurgan, the 10 deaths from all causes for that district including 8 from measles. Among the 109 deaths from all causes registered in Belfast are 2 from measles, one from diphtheria, and one from diarrhoea. Of the 3 deaths from all causes registered in Newtownards one is from diphtheria, and included in the 6 deaths from all causes registered in Armagh, are 4 from measles.

#### DUBLIN REGISTRATION AREA.

The Dublin Registration Area consists of the City of Dublin as extended by the Dublin Corporation Act, 1900, together with the Urban Districts of Rathmines, Pembroke, Blackrock, and Kingstown. The population of this area is 398,356, that of the City being 306,902, Rathmines 36,567, Pembroke 28,506, Blackrock 8,759, and Kingstown 17,622.

In the Dublin Registration Area the births registered during the week ended Saturday, December 3, 1910, amounted to 199—104 boys and 95 girls; and the deaths to 176—77 males and 99 females.

#### DEATHS.

The deaths registered represent an annual rate of mortality of 22.8 in every 1,000 of the population. Omitting the deaths (numbering 7) of persons admitted into public institutions from localities outside the Area, the rate was 21.9 per 1,000. During the forty-eight weeks ending with Saturday, December 3, the death-rate averaged 21.1, and was 2.9 below the mean rate for the corresponding portions of the ten years 1900-1909.

The total deaths included 4 deaths from diphtheria (exclusive of one death from a locality outside the Area), 5 from whooping-cough, 3 deaths from scarlet fever, and 6 deaths from diarrhoeal diseases (of this figure 2 were deaths of adults, one was of a child aged one year, and 3 were infants under one year). The deaths of 2 infants under one year of age from *gastro-enteritis* were also registered, and 4 deaths from influenza. In each of the three preceding weeks deaths from diphtheria had been 2, 3, and 2; deaths from diarrhoeal diseases had been 4, 2, and 1; deaths

from influenza had been one, 0, and 2 ; deaths from scarlet fever had been 0, 2, and one ; and deaths from whooping-cough had been 4, 2, and 6.

The death of an infant aged 3 months suffering from varicella was registered.

Of 14 deaths from pneumonia (all forms) there were 7 deaths from broncho-pneumonia, one death from lobar pneumonia, and there were 6 deaths from *pneumonia* (not defined).

The deaths (23) from all forms of tuberculous disease included 16 from tubercular phthisis (*phthisis*), one from tubercular meningitis, one from tubercular peritonitis, and 5 deaths from other forms of the disease. Deaths from all forms of tuberculous disease in the three preceding weeks had been 27, 28, and 20 respectively.

There was one death from carcinoma, and 2 deaths from cancer, malignant disease (undefined).

Four deaths of prematurely born infants were recorded.

Of 9 deaths attributed to diseases of the brain and nervous system, 3 were those of infants under one year of age from *convulsions*.

Diseases of the heart and blood-vessels caused 30 deaths, and bronchitis caused 34 deaths.

Of 4 deaths from accidental causes 2 were deaths of children aged, respectively, 9 years and 12 years, from burning.

In five instances the cause of death was "uncertified," there having been no medical attendant during the last illness. These cases comprise the deaths of 3 infants under one year old, and the deaths of 2 persons, aged 60 years and upwards.

Fifty-five of the persons whose deaths were registered during the week were under 5 years of age (38 being infants under one year, of whom 14 were under one month old), and 59 were aged 60 years and upwards, including 33 persons aged 70 and upwards, of whom 12 were octogenarians, and one (a female) was stated to have been aged 97 years.

The Registrar-General points out that the names of the cause of death printed above in italics should be avoided whenever possible in Medical Certificates of the Cause of Death.

#### STATE OF INFECTIOUS DISEASE IN THE DUBLIN REGISTRATION AREA AND IN BELFAST.

The usual returns of the number of cases of infectious diseases

notified under the "Infectious Diseases (Notification) Act, 1889," and the "Tuberculosis Prevention (Ireland) Act, 1908," as set forth in the following table, have been furnished by Sir Charles A. Cameron, C.B., M.D., Medical Superintendent Officer of Health for the City of Dublin: Mr. Fawcett, Executive Sanitary Officer for Rathmines and Rathgar Urban District; Mr. Manly, Executive Sanitary Officer for Pembroke Urban District; Mr. Heron, Executive Sanitary Officer for Blackrock Urban District; the Executive Sanitary Officer for Kingstown Urban District; and by Dr. Bailie, Medical Superintendent Officer of Health for the City of Belfast.

TABLE SHOWING THE NUMBER OF CASES OF INFECTIOUS DISEASES notified in the Dublin Registration Area (viz.—the City of Dublin and the Urban Districts of Rathmines and Rathgar, Pembroke, Blackrock, and Kingstown), and in the City of Belfast, during the week ended December 3, 1910, and during each of the preceding three weeks. An asterisk (\*) denotes that the disease in question is not notifiable in the District.

CITIES AND URBAN DISTRICTS	Week ending	Small-pox	Measles	Rubella, or Epidemic Rose Rash	Scarlet Fever	Typhus	Relapsing Fever	Diphtheria	Membranous Croup	Typhexia (origin uncertain) <sup>a</sup>	Euteric or Typhoid Fever	Erysipelas	Puerperal Fever	Whooping-cough	Cerebro-spinal Fever	Tubercular Phthisis ( <i>Phthisis</i> )	Total
City of Dublin	Nov. 12	-	•	•	24	-	-	10	-	1	5	13	-	•	-	11	64
	Nov. 19	-	•	•	27	-	-	16	-	-	-	9	-	•	-	22	72
	Nov. 26	-	•	•	12	-	-	10	-	1	5	6	-	•	-	13	52
	Dec. 3	-	•	•	23	-	-	11	-	1	5	11	-	•	-	16	67
Rathmines and Rathgar Urban District	Nov. 12	-	•	•	-	-	-	1	-	-	-	1	-	•	•	•	2
	Nov. 19	-	•	•	1	-	-	6	-	-	-	-	-	•	•	•	11
	Nov. 26	-	•	•	12	-	-	4	-	-	-	1	-	•	•	•	21
	Dec. 3	-	•	•	-	-	-	1	-	-	-	-	-	•	•	•	1
Pembroke Urban District	Nov. 12	-	1	-	2	-	-	-	-	-	1	-	-	-	-	1	6
	Nov. 19	-	-	-	2	-	-	-	-	-	-	-	-	4	-	-	7
	Nov. 26	-	-	1	1	-	-	1	-	-	1	-	-	2	-	-	11
	Dec. 3	-	3	-	1	-	-	-	-	-	-	-	-	1	-	-	5
Blackrock Urban District	Nov. 12	-	•	•	3	-	-	-	-	-	-	-	-	•	-	•	3
	Nov. 19	-	•	•	-	-	-	-	-	-	-	-	-	•	-	•	2
	Nov. 26	-	•	•	-	-	-	-	-	-	-	-	-	•	-	•	2
	Dec. 3	-	•	•	1	-	-	1	-	-	-	-	-	•	-	•	2
Kingstown Urban District	Nov. 12	-	•	•	-	-	-	-	-	-	-	-	-	•	•	-	-
	Nov. 19	-	•	•	-	-	-	-	-	-	-	-	-	•	•	-	-
	Nov. 26	-	•	•	-	-	-	2	-	-	-	-	-	•	•	-	2
	Dec. 3	-	•	•	-	-	-	-	-	-	-	-	-	•	•	-	-
City of Belfast	Nov. 12	-	•	•	27	1	-	7	-	-	12	13	-	•	•	10	60
	Nov. 19	-	•	•	29	-	-	9	-	-	-	4	-	•	•	18	60
	Nov. 26	-	•	•	32	1	-	7	-	-	-	2	-	•	•	10	52
	Dec. 3	-	•	•	30	-	-	10	-	1	1	10	-	•	•	25	77

<sup>a</sup> Continued Fever.

## CASES OF INFECTIOUS DISEASES UNDER TREATMENT IN DUBLIN HOSPITALS.

During the week ended December 3, 1910, 5 cases of measles were admitted to hospital, 4 were discharged, and 9 cases remained under treatment at its close.

Twenty-six cases of scarlet fever were admitted to hospital, 17 were discharged, there were 4 deaths, and 119 cases remained under treatment at the close of the week. This number is exclusive of 24 convalescents from the disease under treatment in Beneavin, Glasnevin, the Convalescent Home of Cork Street Fever Hospital. At the close of the 3 preceding weeks the cases in hospital had been 109, 110, and 114 respectively.

Fourteen cases of diphtheria were admitted to hospital, 13 were discharged, there were 4 deaths, and 61 patients remained under treatment at the close of the week. The cases in hospital at the close of the 3 preceding weeks had numbered 76, 64, and 64 respectively.

One case of enteric fever was admitted to hospital during the week, 8 were discharged, and 40 cases remained under treatment in hospital at the close of the week, the respective numbers in hospital at the close of the three preceding weeks being 47, 46, and 47.

In addition to the above-named diseases, 4 cases of pneumonia were admitted to hospital, 2 were discharged, there were 2 deaths, and 15 cases remained under treatment at the end of the week.

## ENGLAND AND SCOTLAND.

The mortality in the week ended Saturday, December 3, in 77 large English towns, including London (in which the rate was 21.1), was equal to an average annual death-rate of 18.1 per 1,000 persons living. The average rate for 8 principal towns of Scotland was 17.5 per 1,000, the rate for Glasgow being 17.3, and for Edinburgh 16.9.

## INFECTIOUS DISEASE IN EDINBURGH.

The Registrar-General has been favoured by A. Maxwell Williamson, M.D., B.Sc., Medical Officer of Health for Edinburgh, with a copy of his Return of Infectious Diseases notified during the week ended December 3. From this report it appears that

of a total of 84 cases notified, 46 were of scarlet fever, 21 of phthisis, 13 of diphtheria, and 4 of erysipelas.

Among the 472 cases of infectious diseases in hospital at the close of the week were 258 cases of scarlet fever, 40 of measles, 53 of phthisis, 20 of whooping-cough, 80 of diphtheria, 1 of enteric fever, 8 of erysipelas, 2 of chicken-pox, one of cerebro-spinal fever, and one of puerperal fever.

#### METEOROLOGY.

*Abstract of Observations made in the City of Dublin, Lat. 53° 20' N., Long. 6° 15' W., for the Month of November, 1910.*

Mean Height of Barometer,	-	-	-	29.644 inches.
Maximal Height of Barometer (19th, at 9 a.m.),				30.281 ..
Minimal Height of Barometer (7th, at 7 a.m.),				28.608 ..
Mean Dry-bulb Temperature,	-	-	-	39.7°.
Mean Wet-bulb Temperature,	-	-	-	38.4°.
Mean Dew-point Temperature,	-	-	-	36.7°.
Mean Elastic Force (Tension of Aqueous Vapour),				.221 inch.
Mean Humidity,	-	-	-	89.4 per cent.
Highest Temperature in Shade (on 1st),				56.3°.
Lowest Temperature in Shade (on 30th),				38.0°.
Lowest Temperature on Grass (Radiation) (10th),				26.3°.
Mean Amount of Cloud,	-	-	-	51.0 per cent.
Rainfall (on 17 days),	-	-	-	2.544 inches.
Greatest Daily Rainfall (on 22nd),				.582 inch.
General Direction of Wind,	-	-	-	W., N.W.

#### Remarks.

The coldest November since the year 1878, in which year the mean temperature of the corresponding month in Dublin was as low as 38.2°, or 2.6° lower than that of the November just closed. The cold was connected with an unusual prevalence of N.W. winds blowing in the rear of cyclonic systems which passed directly over the British Isles on their eastward course instead of following a more usual route north-eastwards to Scandinavia. With atmospheric pressure generally high both in the direction of Iceland and Greenland to the northward and over the Iberian Peninsula to the southward, large and deep barometrical depressions travelled from the Atlantic Ocean right across the United Kingdom. In one of these depressions the barometer sank to 28.37 inches at Wick on the morning of the 7th.

Within the region covered by a spur of high pressure thrown off from an anticyclone central in the Icelandic direction on the 20th and 21st a chill occurred over England, the thermometer falling to  $22^{\circ}$  at Oxford on the morning of the 22nd. But at this time an Atlantic depression spreading slowly over Ireland from the westward caused southerly winds, heavy rains, and a brisk increase of temperature, a maximum of  $57^{\circ}$  being recorded at Valentia on the day named. The milder conditions continued in Ireland till the morning of the 26th, when a chill took place, lasting to the close, and culminating in a sharp frost on the 30th.

In Dublin the arithmetical mean temperature ( $40.8^{\circ}$ ) was  $4.5^{\circ}$  below the average ( $45.3^{\circ}$ ); the mean dry-bulb readings at 9 a.m. and 9 p.m. were  $39.7^{\circ}$ . In the forty-six years ending with 1910, November was coldest in 1878 (M. T. =  $38.2^{\circ}$ ), and in 1870 (M. T. =  $42.2^{\circ}$ ); warmest in 1899 (M. T. =  $50.7^{\circ}$ ), and in 1881 (M. T. =  $50.3^{\circ}$ ). In 1909 the M. T. was  $43.0^{\circ}$ .

The mean height of the barometer was 29.644 inches, or 0.216 inch below the corrected average value for November—namely, 29.860 inches. The mercury rose to 30.281 inches at 9 a.m. of the 19th, and fell to 28.608 inches at 7 a.m. of the 7th. The observed range of atmospheric pressure was, therefore, 1.673 inches.

The mean temperature deduced from daily readings of the dry-bulb thermometer at 9 a.m. and 9 p.m. was  $39.7^{\circ}$ , or  $11.5^{\circ}$  below the value for October, 1910. The arithmetical mean of the maximal and minimal readings was  $40.8^{\circ}$ , compared with a thirty-five years' (1871–1905) average of  $45.3^{\circ}$ . On the 1st the thermometer in the screen rose to  $56.3^{\circ}$ —wind, W.; on the 30th the temperature fell to  $28.0^{\circ}$ —wind, W. The minimum on the grass was  $26.3^{\circ}$  on the 10th.

The rainfall was 2.544 inches on 17 days—the rainfall was slightly below and the rain-days were equal to the average. The average rainfall for November in the thirty-five years, 1871–1905, inclusive, was 2.720 inches, and the average number of rain-days was 17. In 1888, 6.459 inches fell on 26 days. On the other hand, the rainfall in 1896 was only .664 inch on 9 days. In 1909 the rainfall was 1.425 inches on 14 days.

High winds were noted on 5 days, and attained the force of a gale on 3 days—the 1st, 6th and 7th. The atmosphere was more or less foggy in Dublin on the 21st, 23rd and 27th. There was an aurora borealis on the 5th. A solar halo was seen on the 20th and again on the 30th. A lunar halo appeared on the 20th

and a corona on the 14th. Lightning was seen on the evening of the 6th. Hail fell on the 1st and 6th.

The rainfall in Dublin during the eleven months ending Nov. 30th amounted to 29.874 inches on 194 days, compared with 15.378 inches on 141 days during the same period in 1887, 24.086 inches on 156 days in 1901, 27.812 inches on 190 days in 1902, 30.015 inches on 212 days in 1903, 20.678 inches on 172 days in 1904, 24.013 inches on 180 days in 1905, 21.001 inches on 185 days in 1906, 21.845 inches on 196 days in 1907, 22.013 inches on 179 days in 1908, 22.531 inches on 172 days in 1909, and a thirty-five years' average of 25.750 inches on 181 days.

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Mr. William H. Clark, B.A., reports that at the Normal Climatological Station in Trinity College, Dublin, the mean height of the barometer was 29.638 inches, the range of atmospheric pressure being from 28.712 inches at 9 a.m. of the 7th to 30.267 inches at 9 a.m. of the 19th. The mean value of the readings of the dry-bulb thermometer at 9 a.m. and 9 p.m. was  $40.6^{\circ}$ . The arithmetical mean of the daily maximal and minimal temperatures was  $41.3^{\circ}$ . The screened thermometers rose to  $55.0^{\circ}$  on the 13th and fell to  $27.2^{\circ}$  on the 30th. On 19th the grass minimum was  $20.1^{\circ}$ . Rain fell on 14 days to the amount of 2.624 inches, the greatest fall in 24 hours being .610 inch on the 22nd. The duration of bright sunshine, according to the Campbell-Stokes recorder, was 57.3 hours, of which 5.1 hours occurred on the 9th. The mean daily sunshine was 1.9 hours. The mean temperature of the soil at 9 a.m. at a depth of one foot was  $43.2^{\circ}$ ; at a depth of 4 feet it was  $48.4^{\circ}$ .

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At Druid Lodge, Killiney, Co. Dublin. Mrs. Olive F. Symes states that 3.04 inches of rain fell on 18 days, compared with a twenty-four years' (1885-1908) average of 2.880 inches on 16 days at Cloncvin. The maximal fall in 24 hours was .68 inch on the 22nd. The rainfall at Druid Lodge in October was 1.82 inches on 17 days, the heaviest day's fall being .60 inch on the 2nd.

Dr. Christopher Joynt, F.R.C.P.I., registered 2.492 inches on 19 days at Leeson Park, Dublin. The maximum in 24 hours was .540 inch on the 22nd. Up to November 30th, the rainfall of 1910 amounted to 31.527 inches.

Dr. Arthur S. Goff reports that at Lynton, Dundrum, Co. Dublin, rain fell on 19 days to the amount of 2.58 inches, the

greatest measurement in 24 hours being .51 inch on the 22nd. The mean temperature in the shade was  $41.0^{\circ}$ , the range being from  $52^{\circ}$  on the 12th and 23rd to  $30^{\circ}$  on the 30th.

Mr. George B. Edmondson reports a rainfall of 2.52 inches on 19 days at Manor Mill Lodge, Dundrum, Co. Dublin. The greatest fall in 24 hours was .32 inch on the 13th and 22nd. The mean temperature of the month was  $39.9^{\circ}$ . On the 12th and 23rd the thermometer rose to  $52^{\circ}$ ; on the 12th and 30th it fell to  $27^{\circ}$ .

At Cheeverstown Convalescent Home, Clondalkin, Co. Dublin. Miss C. Violet Kirkpatrick recorded a rainfall of 2.36 inches on 17 days. The maximal fall in 24 hours was .40 inch on the 12th.

Mr. T. Bateman reports that the rainfall at The Green, Malahide, Co. Dublin, was 3.13 inches on 16 days—the greatest fall in 24 hours being .585 inch on the 22nd. The mean shade temperature was  $36.2^{\circ}$ , the extremes being—highest,  $48^{\circ}$  on the 7th; lowest,  $22^{\circ}$  on the 16th.

The rainfall at Ardgillan, Balbriggan, Co. Dublin, as recorded by Captain Edward Taylor, D.L., was 3.72 inches, or 0.97 inch above the average for November. The rain-days were 16, or one over the average. On the 22nd, and again on the 27th, 0.57 inch was measured. From January 1st the rainfall equalled 29.41 inches on 179 days, being 3.41 inches and 10 days in excess. The thermometer in the screen rose to  $52.9^{\circ}$  on the 1st and fell to  $26.6^{\circ}$  on the 17th. The November rainfall at Ardgillan in recent years has ranged from 0.92 inch in 1896 to 5.05 inches in 1901.

Mr. R. Cathcart Dobbs, J.P., reports that at Knockdolian, Greystones, Co. Wicklow, the rainfall was 3.530 inches on 15 days. Of the total quantity .800 inch fell on the 22nd.

At Clonsilla, Greystones, Co. Wicklow, Dr. W. Stewart Ross measured 3.95 inches of rain on 18 days, the heaviest fall in 24 hours being 0.54 inches on the 30th. The mean temperature was  $40.3^{\circ}$ , the maximum being  $50^{\circ}$  on the 13th, and the minimum  $30^{\circ}$  on the 16th.

Dr. J. T. Crowe reports a rainfall of 4.07 inches on 17 days at the Royal National Hospital for Consumption for Ireland, Newcastle, Co. Wicklow. The greatest fall in 24 hours was .89 inch on the 22nd. The mean temperature for the month was  $40.9^{\circ}$ , the maximum being  $56.0^{\circ}$  on the 1st, and the minimum  $25.0^{\circ}$  on the 30th. The mean maximum was  $46.3^{\circ}$ ; the mean minimum was  $35.5^{\circ}$ .

In the City of Cork Mr. William Miller returns the rainfall at 3.33 inches, or 0.57 inch less than the average for November. There were 20 rain-days. The heaviest fall in 24 hours was .80 inch on the 22nd. Up to November 30th, the rainfall of 1910 amounted to 33.94 inches—that is, 0.30 inch more than the average for the first eleven months of the year. The rain-days were 198, or 22 over the average.

At Dunmanway Rectory, Co. Cork, the Rev. Arthur Wilson, M.A., registered a rainfall of 6.27 inches on 23 days, the heaviest fall in 24 hours being 1.83 inches on the 22nd. On the whole, a wet, cold month. Rain fell without ceasing from 6 p.m. of the 20th to 9 a.m. of the 23rd—the measurement being 3.08 inches.

Mr. William Holbrow reports a rainfall of 6.39 inches on 24 days at Derreen, Kenmare, Co. Kerry. The heaviest fall in 24 hours was 1.04 inches on the 22nd. Frost prevailed on the 16th, 17th, and 18th. Snow fell on the 17th. There was a sea-fog on the 23rd. The month was very stormy and wet; rain fell daily from the 1st to the 25th.

At the Ordnance Survey Office, Phoenix Park, Dublin, rain fell on 17 days to the amount of 3.068 inches, the largest measurement in 24 hours being .650 inch on the 22nd. The total amount of sunshine was 93.5 hours, the most in one day being 7.5 hours on the 5th.

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EHRLICH-BATA. "606."

SIMULTANEOUSLY with the free gift of this remedy to the Apothecaries (it has now received the name "Salvarsan") Geheimrat Ehrlich has published the results of its scientific investigation in the form of a book under the title: "Scientific and Therapeutic Experiences with Salvarsan" (Munich: J. F. Lehmann). He himself contributes, as an Introduction, an intelligent, highly important and suggestive epitome of all the results obtained hitherto. In connection therewith some thirty works have been published, which set forth the action of the remedy generally, and in particular diseases. They are, for the most part, articles which appeared originally in the *Münchener medizinischen Wochenschrift*, and which are now published in this work in an extended form and brought up to date. This publication, the first on the effects of the remedy edited by Ehrlich himself, should excite the greatest interest in all circles.

## PERISCOPE.

### DUBLIN HOSPITALS' TUBERCULOSIS COMMITTEE.

THE Quarterly Meeting of the Dublin Hospitals' Tuberculosis Committee was held on Thursday, December 8th, 1910, at 76 Grafton Street, at 5 30 p.m. Present :—Sir John Moore, M.D., in the Chair ; Her Excellency the Countess of Aberdeen, Dr. Cox, Dr. Herbert Byrne, Dr. Delahoyde, Dr. Frank Dunne, Dr. Kirkpatrick, Dr. O'Carroll, Dr. G. Peacocke, and the Hon. Secretary, Sir William J. Thompson. Letters of apology were received from Sir Arthur Chance, Dr. Lumsden, and Dr. Parsons. The minutes of the previous meeting were read, confirmed, and signed. The Committee adopted the report of the Sub-Committee appointed to draw up a resolution with regard to the notification of tuberculosis. It was directed that this report, which points out " that the detection and isolation of cases of pulmonary tuberculosis in all stages are necessary in the interests of the public health," should be sent to the Local Government Board for Ireland, and also to the Presidents of the Royal College of Physicians and the Royal College of Surgeons, Ireland. Dr. Daniel's report was considered satisfactory, and also that of the Nurses, who devoted all their time to tuberculosis patients. The good and far-reaching work the nurses are doing amongst the consumptive poor of the City of Dublin is strikingly illustrated by the large number of patients who voluntarily ask for their services. Her Excellency reported to the meeting that the P. F. Collier Tuberculosis Dispensary in Charles Street, Dublin, was fast approaching completion, and that early next year (1911) it would be ready and all arrangements made to commence work.

The following is Dr. Daniel's Report :—

" 56 HARCOURT STREET, DUBLIN.

" 30th November, 1910.

" In presenting my report for the three months ended 19th instant, I beg to say that during the quarter I made 20 visits to patients at their homes, and during the same period 25 visits were made by patients at my residence. Total, 45 visits. I was able to facilitate the admittance of two patients into the South Dublin Union Infirmary for special tubercular treatment. One

patient was examined by me for the Allan A. Ryan Home and seven for the Holiday Home, Sutton, all of whom were admitted. The Hospice for the Dying, Harold's Cross, took in three patients for me during the three months, and one patient, who postponed going until he was too far advanced to be removed, died under my care at his home. The rooms occupied by patients removed to Institutions were, on application by me to the Medical Superintendent Officer of Health, disinfected by the Corporation before new tenants took up possession.

“(Signed) JOSEPH T. DANIEL.”

The following is a summary of report of work done by three tuberculosis district nurses in Dublin during nine months ended 19th November, 1910 :—

No. of cases attended—139 old cases, 214 new cases—Total 353

Of these, 53 died ; the remainder are under treatment or have been dealt with as follows :—

„ visits paid - - - - -	4,719
„ average weekly attendances - - - - -	121
„ cases notified from hospital - - - - -	56
„ „ otherwise - - - - -	158
„ „ improved so much that they were able to return to work again - - - - -	35
„ „ sent to the Royal National Hospital, Newcastle, Co. Wicklow - - - - -	5
„ „ waiting to be admitted to Newcastle Hospital - - - - -	3
„ „ sent to other sanatoriums - - - - -	30
„ „ gone or sent to friends in the country - - - - -	27
„ „ sent to South Dublin Union for special tuberculosis treatment - - - - -	21
„ „ admitted to North Dublin Union Hospital - - - - -	11
„ „ „ South Dublin Union Hospital - - - - -	14
„ „ „ the Hospices for the Dying - - - - -	45
„ „ attended who have been at Newcastle Hospital - - - - -	36
„ deaths at patients' homes - - - - -	25
„ „ in institutions - - - - -	28
„ families removed to more healthy homes - - - - -	15
„ rooms disinfected - - - - -	87
„ insanitary houses reported - - - - -	22
„ sputum flasks distributed - - - - -	41
„ families received nourishment - - - - -	155
„ patients who received clothes, shoes, bedding, &c. - - - - -	116

No. of families for whom rent is being paid while the bread-	
winner is at Newcastle or in the Dublin Unions -	9
„ children of parents suffering from Tuberculosis sent	
to the country through Fresh Air Fund -	117
„ children boarded out while the mother is in hospital	4
„ patients or their families for whom work has been	
obtained - - - - -	23
„ children sent to schools or institutions after parents'	
death - - - - -	4
„ each family, rough average - - - between 5 and 6	
„ families occupying one room - - -	97
„ families in which more than one person are affected	77
Average weekly income - - -	14s. 6d.
Average weekly income when bread-	
winner is ill - - - - -	4s. 6d

## NEW PREPARATIONS AND SCIENTIFIC INVENTIONS.

### *For Dental Practice.*

THE question of the local anæsthetic in dental work is an important one. A useful preparation for this purpose is "hemisine" and cocaïn hydrochloride, issued by Messrs. Burroughs, Wellcome & Co. "Hemisine" is their well-known preparation of the suprarenal active principle, and it is here combined with cocaïn in just the right proportion to enhance the value of the latter, without causing too much constriction of the capillary blood vessels of the socket. There is thus no liability to sloughing. Clinical reports show that the anæsthesia produced is very satisfactory. A preparation of the same strength is "vaporole" "hemisine" and cocaïn hydrochloride, and in this case the solution is sterile and put up in special hermetically-sealed containers, from which it can at once be drawn into the syringe and injected. "Hemisine" and cocaïn hydrochloride solution is issued in stoppered bottles of 10 c.c. Each c.c. contains "hemisine" 0.00003 gramme (gr. 1/2160) and cocaïn hydrochloride, 0.02 gramme (gr. 1/3). Direction—One c.c. to be injected into the gums for the production of local anæsthesia. "Vaporole" "hemisine" and cocaïn hydrochloride: "hemisine," 0.00003 gramme (gr. 1/2160), cocaïn hydrochloride 0.02 gramme (gr. 1/3). Water to 1 c.c. Direction—The contents of the "vaporole" container (1 c.c.) to be injected. These vaporoles are issued in boxes of 10.

# THE DUBLIN JOURNAL OF MEDICAL SCIENCE.

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FEBRUARY 1, 1911.

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## PART I. ORIGINAL COMMUNICATIONS.

ART. III.—*Solid Solutions and Crystalline Liquids.*<sup>a</sup>  
By WALTER G. SMITH, M.D.; Ex-President, Royal  
College of Physicians.

My present task is a modest one. It is to lay before you a *résumé* of some recent investigations which touch the borderland of physiology and physics, and which are of interest alike to the physicist, the chemist, the geologist, and the biologist.

### I. SOLID SOLUTIONS.

Of late years we have become habituated to the novel term, "solid solutions," proposed by van't Hoff, in 1890, but a more startling innovation arose when Lehmann, in 1889, suggested the term "liquid crystals," a phrase which at first sight seems self-contradictory, and almost provokes an incredulous smile of ridicule.

<sup>a</sup> Address delivered before the Experimental Science Association, University of Dublin. November, 1909.

It may at once be stated that the problems of solid solutions are less complex, and rest upon a surer foundation than those of liquid crystals, or, as they are, perhaps, better named, "crystalline liquids."

From physical considerations, based upon the anomalous cryoscopic behaviour of certain solutions of *organic* bodies, van't Hoff was led, nearly twenty years ago, as an extension of his theory of liquid solutions, to enunciate the doctrine of "solid solutions," a term which then evoked vigorous opposition, but which is now accepted with unanimity.

How shall we define a solution? Various definitions have been given, and I will select that of van't Hoff as the most comprehensive.

It may be thus expressed:—

"A solution is a homogeneous mixture whose composition and physical properties can, within certain limits, be altered continuously with maintenance of homogeneity."

Bodländer's definition is much the same. This definition is independent of the condition of aggregation, and will embrace within its range gaseous, liquid, and solid states of matter. We may, therefore, have solutions of gases in gases, of gases in liquids or solids, of liquids in liquids or solids, and of solids in solids. We all know that gases freely intermingle in all proportions independently of their chemical nature.

All gaseous and liquid solutions are formed by process of diffusion. But in the case of liquid solutions free miscibility is usually connected with a certain analogy or similarity in chemical nature between the two substances—*i.e.*, the so-called solvent and the solute. The distinction between these two terms is purely conventional.

As might naturally be expected, the limiting range of solid solutions is much more restricted, and we find, by experience, that these demand a much closer similarity in chemical nature for solution to occur.

In fact, we may, in reference to combination and solution, recognise two groups:—

(a) HETERO-POLAR.—Substances usually *combine* the more easily and firmly, the greater the difference between them.

(b) HOMO-POLAR.—Bodies readily *dissolve* in one another the closer they are related to each other. It is unwise to attempt to lay down an impassable barrier between these two groups.

In spite of much opposition it has been abundantly proved that diffusion processes come to pass in solids and even in crystals, and the definition of a solid cannot be drawn from its mechanical properties.

A “solid solution” may be defined as a homogeneous solid phase, the composition of which can undergo continuous variation within certain limits.

Let me adduce a few illustrations.

(a) *Gases in Solids*.—The remarkable occlusion of hydrogen by metals, especially palladium, iron, and platinum. Recent investigations have disproved Graham’s supposition that the hydrogen plays the part of a metal and formed an alloy with Pd. There is probably a definite compound formed  $\text{Pd}_2\text{H}$ . At a red heat Pd absorbs 900 times its volume of H, and after absorption the metal appears unchanged.

(b) “*Adsorption*” (Frankenheim, 1835)—*i.e.*, condensation upon a surface; *e.g.*, the taking up by charcoal of gases, and of organic colouring matters. Surface tension here plays an important part, and intermediate stages occur between absorption and adsorption, and combination.

(c) *Solids in solids*.

(i) Amorphous, *e.g.*, glass: porcelain.

The electrical conductivity of glass, first shown by Helmholtz, and of the cylinders in the Nernst lamp, is electrolytic in its nature, and is consonant with the view that diffusion processes take place. Nernst rods, after

ignition, plainly show polar differences at the electrodes; the cathode is always darker than the anode, owing to the liberation of metal.

Roberts-Austen's experiments (1896) are well known. A cylinder of pure lead was soldered on a plate of gold. After six weeks, at a temperature of  $100^{\circ}$ , a measurable amount of gold had diffused upwards into the lead, and the rate of diffusion was immensely augmented by raising the temperature to  $251^{\circ}$ . Serial sections were cut and analysed.

Similarly, Spring showed that at  $400^{\circ}$  zinc and copper underwent diffusion to the extent of 18 m.m. in seven hours: Cd and Cu, 15 m.m. in five hours, at  $295^{\circ}$  (Bruni, "Feste Lösungen und Isomorphismus," 1908, p. 88).

Spring further proved that in an equimolecular mixture of  $\text{BaSO}_4$  and  $\text{Na}_2\text{CO}_3$ , subjected to a pressure of 6,000 atmospheres, double decomposition occurred to a large extent.

The laws of hydrostatics and hydrodynamics are applicable to solids subjected to strong pressures, and, under sufficient pressure, a solid metal can be made to flow like a liquid.

It has been experimentally shown that dilute solid solutions follow the general laws of dilute liquid solutions—*e.g.*, as to vapour pressure, cryoscopic results, and in other respects. They flow through orifices, transmit pressure in all directions, and react chemically upon each other.

In America tools are made from blocks of steel subjected to adequate pressure without the need of raising the temperature.

Solid solutions, far from being a rare or exceptional phenomenon, as even Arrhenius believed ten years ago, are not infrequent occurrences, and they play an important part in mineralogy. Out of 140 pairs of elements examined by Tammann and his pupils it appears that no less than 77 give rise to solid solutions, and in 23 cases, mixed crystals are formed which contain the constituent

elements in all possible proportions. The elements which are allied in Mendeléef's arrangement are, as a rule, those which show the greatest tendency to yield mixed crystals. Isomorphism between elements is much more extended than it is between their compounds, a fact previously unsuspected.

*Incandescent Mantles.*—A minute quantity of one solid dissolved in another solid may cause remarkable modification of properties. This would seem to be the secret of the luminosity of the Welsbach incandescent mantle, which consists of 99 per cent. oxide of thorium with 1 per cent. oxide of cerium. This proportion of 1 per cent. is in many cases an *optimum*. The addition of 1 per cent. cerium oxide exalts the luminous efficiency of the thorium oxide 40-fold.

Similar considerations apply to the Nernst lamp. Wöhler has shown that ignited metallic oxides can furnish solid solutions. Schmidt and Wiedemann found that *pure* oxides or salts of the rare metals do not distinctly fluoresce under the influence of the positive (canal) rays of a Crookes' tube, but become luminous when mixed, especially if previously ignited—*i.e.*, when diffusion (solution) is facilitated.

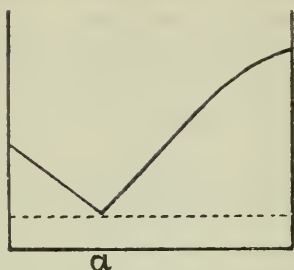
Metastable systems may exist for an unlimited time, and the practical stability of many systems which, theoretically, are to be regarded as unstable is now well established.

Thus, in nature, we meet with enormous masses of aragonite, the metastable modification of calcium carbonate, which endure for centuries or milleniums without changing into the more stable calcspar.

*Cementation of Iron.*—The penetration of carbon into iron in the preparation of cement-steel is another example of solid solution.

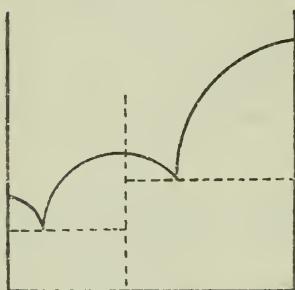
All the iron-carbon alloys of commerce are "solid solutions"—*e.g.*, wrought iron, piano wire (ferrite), steel, and cast iron. These are named in ascending order of their carbon-content.

## ALLOYS.

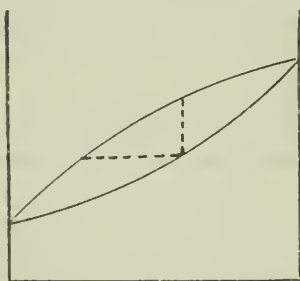


The constituents form neither combinations nor mixed crystals.

$a$  = eutectic point.



Combination, but no mixed crystals. Two eutectic points. Middle branch of curve indicates crystallisation of compound.



Form solid solutions. Fusion temperatures lie between 2 points. Mix in all proportions.

From the molten mass of metal there first separates out "martensite" (2 per cent. at  $1130^{\circ}$ ), a solid solution of carbon in iron, in varying proportions. As the temperature falls "cementite" (white cast iron) separates, and it is a definite compound,  $\text{Fe}_3\text{C}$ .

Tammann has proved that frequently combinations and solid solutions co-exist.

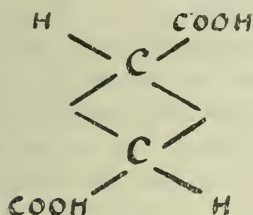
Time forbids to enter upon the difficult subject of colloid solutions, but it is certain that we meet with solid

solutions in organic compounds as well as in inorganic substances.

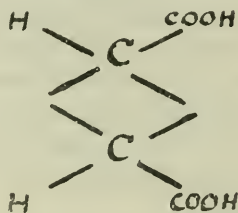
This study was begun by Ciamician, and carried on by Garelli and Bruni, and it occurs with cyclic compounds, whether homo- or hetero-cyclic.

Garelli has established that cyclic compounds, of the same order, can mutually crystallise together, so that we get isogonous and symmorphous forms.

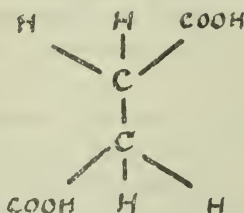
Fumaric acid (anti or trans.)



Maleic acid (cis.)



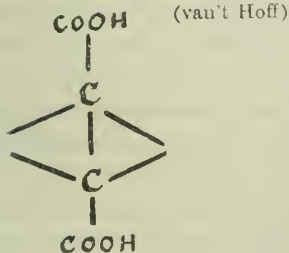
Normal succinic acid.



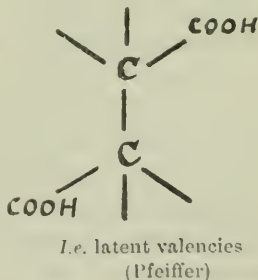
The favoured form.

Iso-succinic acid = ethylidene acid =  $\text{CH}_3\text{CH}(\text{COOH})_2$ .  
Acetylene-dicarboxylic acid.

Usual formula



Trans. formula



Nor is it limited to cyclic compounds, and, for open chains, Bruni enunciates an interesting rule, viz.:—

Saturated compounds furnish solid solutions with the

corresponding *fumaric* forms of unsaturated derivatives with ethylene double linkage, as also with acetylene derivatives.

The *maleic* forms of the ethylene derivatives, on the other hand, do not.

We see, then, that this conception can give valuable aid towards determining problems of chemical constitution, and of stereo-isomerism.

(ii) *Crystalline*.—Isomorphous bodies, and mixed crystals afford examples of solid solutions—*i.e.*, they are homogeneous phases of variable composition. It is not easy to give a satisfactory definition of isomorphism, and difficulties crop up with every attempt. Barlow and Pope have endeavoured to ally chemical and crystallographic structure with an extension of the doctrine of valency.

Retgers has disproved the so-called law of Buys Ballot (1846) according to which the degree of symmetry of a crystal decreases with increasing complexity of the chemical molecule.

Polymorphism is, as Tammann has shown, much more extended, especially under high pressure, than was commonly supposed. In some cases it is conditioned by chemical isomerism—*e.g.*, yellow and red phosphorus, crystalline and amorphous sulphur, which are both polymorphous and polymeric. In most cases, however, this is not so—*e.g.*, trimetric and monoclinic sulphur. Mercuric iodide is polymorphous in the yellow and red forms, which yet are of identical molecular magnitude. Hence we can no longer maintain the older view that every difference of crystal-form argues a corresponding difference in chemical structure.

Polymorphism is obviously restricted to the crystalline state, whereas isomerism occurs in solid, liquid, and gaseous states of matter.

According to Bruni the best criterion of isomerism, in contradistinction to polymorphism, is afforded by the melting point. Two isomers are both stable at their

melting points, while two substances are polymorphous if only one of them is stable at its melting point, regarded from the point of view of the phase-rule. The question is beset with practical difficulties in experimentation. Bruni proposes the apt and convenient term, "isogonism" for similarity of crystalline form, and adopts Groth's term of "morphotropy" for alterations in crystalline form coincident with changes in the composition and constitution of the molecules. But these terms, although serviceable, must not be pushed too closely. The formation of mixed crystals is termed "symmorphism."

Bruni would restrict the term *isomorphism* to the cases where *isogonism* and *symmorphism* are simultaneously present.

Mixed crystals can be prepared either from solutions or by sublimation.

Ordinary colourless alum, when crystallising from solutions containing the highly-coloured chrome alum, forms coloured octahedra. Yet the most minute examination reveals no gross irregularities in the physical distribution of the material, or any other evidence of lack of homogeneity. The crystals have diffused into one another, and formed a solid solution.

Mixed crystals are not to be confounded with superposed crystals, a beautiful specimen of which I show, lent by Dr. Sydney Young—viz., chrome alum surrounded by potassium alum. At ordinary—i.e., comparatively low—temperatures the formation of mixed crystals is relatively rare. As the temperature rises their frequency increases considerably, and, at high temperatures, pure crystals are the exception. This point is abundantly illustrated in metallic alloys, and, in most metallic pairs the higher melting component predominates. Mixed crystals and double salts are closely related. An example on a large scale is furnished by dolomite, which builds up mountain chains. According to the crystalline form it would be regarded as an isomorphous mixture of calcite and magnesite, while the

analytical data point to its interpretation as a double salt isomorphous with its constituents.

The conditions under which the dolomitisation of limestone is brought about are still very obscure. It is stated that the process of dolomitisation is at present going on in "Seine Bank," N. E. of Madeira, at a depth of 500 feet. (*Nature*, June 24, 1909.) In short, important relations, as yet imperfectly developed, exist between crystalline form, chemical constitution, and the formation of mixed crystals, and the solution of this problem is one of the main goals of chemical crystallography.

As an example of mixed crystals prepared by sublimation, I show this specimen obtained by cautiously heating colourless  $\text{HgBr}_2$  with red  $\text{HgI}_2$  in an exhausted tube (Bruni and Padoa, 1902). A permanent yellow sublimate is obtained which is a solid solution of the two salts. Homogeneous mixed crystals are also obtained from mixtures of  $\text{HgCl}_2$  and  $\text{HgI}_2$  and of azobenzene with stilbene, heated to a temperature below the melting point of the mixture.

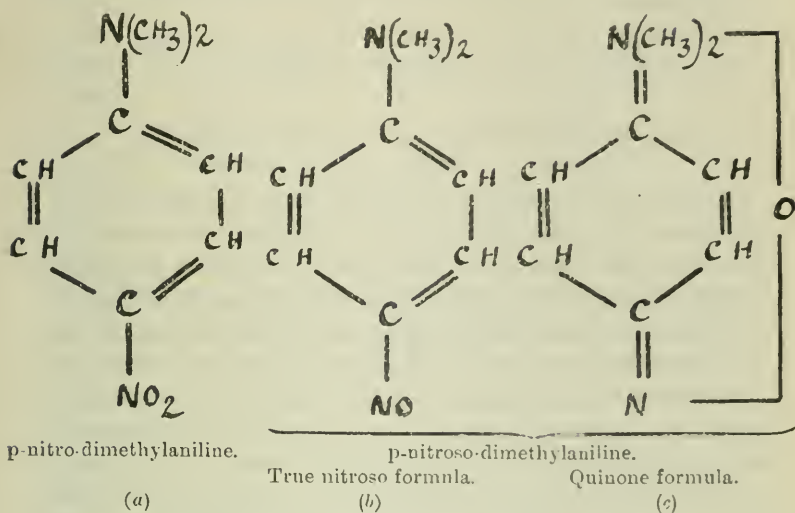
Molecular percentage of  $\text{HgI}_2 + \text{HgBr}_2$

	In original mixture C	In sublimate $C_1$	$\frac{C_1}{C}$
I.	15.89	14.96	0.94
II.	37.73	31.35	0.85
III.	51.95	44.67	0.86
IV.	76.07	69.76	0.92

Nitro- and nitroso-compounds form coloured mixed crystals—*e.g.*, p-nitro, and p-nitroso-toluol: p-nitro, and p-nitroso-dimethylaniline.

From this circumstance, and from their isogonism, Bruni was led to conclude that the structural formula of p-nitroso-dimethylaniline was, at least in the solid state, that of a true nitroso-compound, and not that of a quinone structure, as several observers had maintained.

Bruni's view has been confirmed by the chemical studies of Angeli and Velardi.



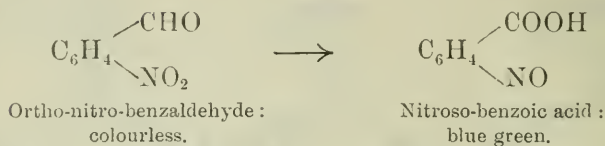
(a) and (b) form solid solutions and are isogonous.

True nitroso-compounds when molten, or, monomolecularly dissolved, show an intense blue green colour, whereas the colour disappears when they are polymerised in solution, or when they crystallise in the pure state. Nitroso-bodies yield with the corresponding nitro-bodies, at low temperatures, blue-green mixed crystals. Hence it is concluded that in these solid solutions the crystalline particles possess a simple molecular structure, while the pure crystals consist of complex double molecules.

Contrary to the view long upheld that crystalline molecules are always formed by union of a large number of chemical molecules, it has been shown by several converging lines of evidence that we must attribute to most crystalline substances an uncomplicated molecular magnitude.

I exhibit specimens of meta-, para-, and ortho-nitrobenzaldehyde, supplied by Mr. Werner. This latter, a colourless body, turns green on exposure to sunlight, and

this is due to an intra-molecular change resulting in the development of the isomeric nitroso-body (Ciamician and Silber).



The green crystals are a saturated solution of the nitroso-acid in the nitro-aldehyde. These two bodies do not intermix in the liquid state. The meta- and the para-aldehydes are not altered in colour by exposure to light.

Isogonism and synmorphism are plainly expressed in the halogen-derivatives of benzene, naphthalene, &c.

Contrary to the opinion of many chemists and crystallographers isogonism may occur without synmorphism—*e.g.*, potassium and sodium alums; alums of ammonia and hydroxylamine. Similarly, synmorphism can happen without isogonism—*e.g.*, ammonium chloride and ferric chloride.

So much for solid solutions.

## II. CRYSTALLINE LIQUIDS.

Let us now turn our attention to the more difficult question of crystalline liquids, which is closely allied to that of solid solutions.

In the first place we must recognise that the rigidity or plasticity of crystals can and does vary within wide limits, and that they may undergo deformation without losing their crystal characters.

At first sight a solid body appears to have a finite rigidity and an infinite viscosity; a liquid, on the contrary, presents a certain viscosity but no rigidity. We have, however, seen that, experimentally, this distinction vanishes, and, moreover, liquids have been shown to retain vestiges of rigidity. All grades of rigidity have been realised between the ordinary solid and the liquid states.

Familiar examples of plastic crystalline substances are afforded by lead, gold, mica, white phosphorus, camphor, wax, and paraffin. Most metals furnish plastic crystals—*e.g.*, galvanised iron, sodium wire. I exhibit a beautiful specimen of crystallised phosphorus, lent by Dr. Sydney Young.

There is a relation between the heat of fusion and the rigidity or plasticity of a crystal.

Phosphorus has the smallest known heat of fusion (1 gram-atom = 0.15 calorie), and the heat of fusion of ethylene cyanide for one gram-molecule = 0.94 calorie. Each of these substances forms very soft crystals. There is no logical ground for denying the existence of a still greater degree of plasticity, and no absolute limit can be set.

Mr. Beilby has shown that the polishing of a scratched metal with washleather covered with rouge, as in the preparation of reflecting mirrors, produces a kind of surface flow. The outer layers of the metal flow like a viscous liquid under the action of the pressure on the polishing tool, and assume an optically perfect surface, amorphous in texture, under the influence of surface tension. Inside the metal the crystalline forms have full play. At its surface, the controlling influences consist, in part, of surface tension, which, under the pressure of a polishing tool, is able to overcome the tendency to assume a crystalline structure ("The Recent Development of Physical Science," W. C. D. Whetham, 1904).

Polishing develops over the crystal surface a true skin, the substance of which is in various respects profoundly different from the crystal substance from which it has been produced. The perfection of the polish depends upon the fact that the surface layer has passed through a liquid phase, and has solidified under the influence of surface tension ("Proc. Roy. Soc.," Vol. 82, A. 558).

Mr. Beilby has also proved that the property of passing from crystalline to amorphous condition by mechanical flow, and from amorphous to crystalline by heat at a definite transition temperature, is a general one which is

possessed by all crystalline solids which do not decompose at or below their transition temperature ("Presidential Address in Chemistry," Brit. Assoc., 1905).

The first example of an undoubtedly crystalline body so soft that it can be kept as a viscid liquid for a length of time is silver iodide.

Lehmann long ago (1876) discovered that the yellow-red hexagonal AgI changes at  $146^{\circ}$  into a soft modification which crystallises in octahedra, isomorphous with AgCl.

At  $450^{\circ}$ —*i.e.*, a difference of  $304^{\circ}$ —it passes into a brown amorphous fluid without decomposition.

Since that remarkable observation was made Lehmann has pursued the subject with unflagging tenacity and great ingenuity, and many other observers have added their quota.

In 1888 it was observed by Reinitzer that certain derivatives of cholesteryl possess the peculiar property of melting sharply at a definite temperature to milky liquids, and that the latter, on being further treated, suddenly become clear, also at a definite temperature. Upon cooling the clear liquids the reverse series of changes occurred. A beautiful and definite play of colours is exhibited by many of the fatty esters of cholesteryl when passing from the molten to the solid state. This is a complicated optical phenomenon, and refraction probably plays a large part. The colours are better brought out, and last longer, when a mixture of the esters is used.

This gamut of colour is proposed by Obermüller (*Zeitsch. f. physiolog. Chemie*, 1891, XV. 37) as a test for cholesterolin.

Dry cholesterolin melted with a few drops of propionic anhydride gives, on cooling, a brilliant play of colours, violet, blue, green, orange and copper red, in this order. Allow the molten substance to cool on a glass rod viewed against a black background (*Cf.* Dr. Craven Moore on Cholesterolin, *Med. Chronicle*, 4th Ser. xiv., p. 204).

Under polarised light the phenomena are very beautiful. (Experiments shown.)

Since 1888 a large number of other substances have been examined, and a considerable contingent of crystalline liquids comes from the para-derivatives of anisol ( $C_6H_5.O.CH_3$ ) and phenetol ( $C_6H_5.O.C_2H_5$ ).

The turbid liquids obtained by careful heating were found to possess not only the usual properties of liquids, such as flowing freely, forming a meniscus in a narrow tube, and of assuming a spherical form when suspended in a liquid of the same density, but also those properties which had hitherto been observed only in the case of solid crystalline substances—viz., the property of double refraction, and of giving interference colours when examined by polarised light—i.e., the turbid liquids are anisotropic.

Lehmann's observations were carried on chiefly by *microscopic* examination, but Schenck's observations cover the ground unoccupied by Lehmann, and he has closely investigated the *macroscopic* physical properties of the bi-refrangent substances.

According to Lehmann and Schenck the apparent turbidity is due to the aggregation of a number of differently oriented soft crystals, the coefficient of refraction of which differs in different directions.

For the better observation of these singular phenomena Lehmann has devised a form of microscope which he calls "crystallisation microscope." Arrangements are made for varying the temperature to which the preparation is exposed on the plate of the instrument, and for keeping it constant at any desired point. To these peculiar states just referred to Lehmann has given the names of "semi-liquid" (*fließende Kristalle*) and "liquid crystals" (*flüssige Kristalle*), but the distinction attempted between these terms is neither definite nor fundamental.

Whatever nomenclature be adopted, Lehmann has proved that there are substances of small rigidity in

which a great amount of shear is possible, and that substances exist with almost negligible rigidity in which so much slipping is permissible, without a collapse, that, although anisotropic, they are as mobile as water. In ethyl-para-azoxycinnamate the crystal is solid in the direction of the principal axis, but fluid at right angles thereto.

Crystalline Solid  $\rightleftharpoons$  Crystalline Fluid  $\rightleftharpoons$  Amorphous Fluid.

Lehmann has observed semi-liquid forms which still present traces of polyhedral limitation, but with the peaks and angles rounded by surface tension, while other forms tend to a spherical shape.

The mutually repulsive action of the molecules, so manifest in a gas, takes in a liquid crystal the form of an "expansion force," possibly of an electromagnetic nature. This force varies in different directions according to the symmetry of the molecule, and consequently the envelope of the liquid crystal, as seen in the microscope, is polyhedral, the corners being rounded owing to the effect of surface tension.

The contour is spherical when the expansion force is nearly uniform in all directions, or is small compared with the surface tension. This tension is merely a convenient way of expressing the resultant effect of the mutual attractions between the molecules and the envelope.

For optical observation of small isolated quantities of anisotropic fluids it is sometimes advisable to mix the pure substances with a trace of resin. Melt to a clear isotropic solution, and then cool by blowing on air until turbid fluid begins to form. The investigation of the surface energy of the liquids indicates that there is no sudden change in their molecular weight at the temperature at which the anisotropic liquid passes into the isotropic condition. The viscosity curves, determined by Schenck and Eichwald, show a large break at this temperature, the isotropic liquids being, surprisingly, in

some cases, the more viscous. The density curves show a similar discontinuity. The two liquids have different specific heats, and there is a small but definite heat of transformation of one form into the other.

Since these liquids are turbid the obvious and natural objection was raised that they are not homogeneous. It has been maintained that the apparent want of homogeneity is due to the existence of fine particles in a liquid, or to something in the nature of an emulsion, or that the substances examined were not chemically pure.

But the non-validity of these assumptions has been steadily maintained by Lehmann, and effectually disposed of by the critical observations of Schenck and Vorländer.

When crystalline liquids are centrifuged no sedimentation is observed, and the absorption spectra of the turbid and of the clear fusion-liquids are identical.

The precise molecular condition cannot yet be considered as finally settled, yet such an authority as M. Lucien Poincaré is prepared to admit that there really exist certain intermediary forms between crystals and liquids in which bodies still retain a peculiar structure, and consequently act on light, but nevertheless possess considerable plasticity ("The New Physics and its Evolution," L. Poincaré, Internat. Sci. Ser., 1907).

It is possible, nay, likely, that the occurrence of liquid-crystalline modification goes hand in hand with the presence of certain definite atomic groupings in the molecule (Vorländer).

Lehmann and Schenck do not allow that the phenomena are due to the formation of isomers or tautomers, and tautomerism can certainly occur independently of the liquid-crystalline phase (Vorländer).

So cautious and competent a critic as Professor Miers is inclined to grant that the so-called liquid crystals, which undoubtedly exhibit definite optical phenomena, may be regarded as examples of liquid matter in which particles, while free to move, are compelled to preserve

the same orientation, and differ in this respect from ordinary liquids.

Liquid crystals, under the influence of a magnetic field, coalesce and arrange themselves with their axes in the direction of the lines of force in the same way as particles of soft iron in the beard of a magnet.

Hulett's experiments on the relation of the melting and the clearing points to pressure show that they are a linear function of the pressure.

Our conceptions of the molecular nature of the solid state are still very vague, and mystery attaches to the mechanism of the formation of crystals. Mr. Beilby (*loc. cit.*) holds that the problems of molecular constitution are more likely to be elucidated by a study of the successive states between the absolute zero and the vaporising temperature than at the upper ranges where the gaseous state alone prevails. We have to bear in mind the interplay of the two great forces, the primitive or blind cohesion which holds undisputed sway at the absolute zero, and the repulsion due to molecular vibrations which is developed by heat.

To sum up the general result of the observations on crystalline liquids. It can no longer be denied that there exist fluids which possess properties that were hitherto ascribed only to solid crystalline bodies. These curious substances are undoubtedly homogeneous, and represent chemical entities, and the properties of double refraction and of turbidity are not due to emulsions or suspensions.

Every crystallographer would, without hesitation, recognise and admit the soft deformable crystals of ammonium oleate as true crystals.

Spherical crystalline drops may be regarded as crystals of low viscosity which are much deformed by the action of surface tension.

In conclusion, it may be felt that some of these observations and deductions are incomplete or inconclusive. Yet may we not say, with Bruni, that scientific men are in the position of a captive who, from his narrow prison,

gets fleeting glimpses of the diversified landscape around him through the chinks of his bars, aided, perchance, in other directions, by holes laboriously bored in his prison walls.

Science, however, aims at levelling the obstructive walls, and its success is measured not alone by increased sharpness of vision over accessible regions, but also by a widening of the field of vision, and the disclosure of new territories awaiting exploration.

One other topic claims a brief consideration—viz., the biological relations of these phenomena.

Many of the figures depicted by Lehmann irresistibly remind us of lower forms of animal or vegetable life, and the similarity between certain liquid crystals and bacteria is remarkable and can scarcely be accidental (*Cf.* Plates in *Ann. der Physik*, 1906, 22, 407).

Quincke believes that all substances on passing from the liquid to the solid state assume what he calls a "foam-structure," or become a network of cells which may enclose crystals ("Proc. Royal Soc.," 21st July, 1906), (*Cf.*, Figs. in Le Bon "Evolution of Matter," p. 258).

Some of Lehmann's illustrations recall what Virchow described as "myelin forms," when certain fatty substances—*e.g.*, lecithin—are rubbed up with water.

According to Lehmann these co-called myelin forms are nothing but mis-shapen fluid crystals of ammonium oleate. Myelin is a vague term, scarcely capable of definition.

Kaiserling and Orgler (Virchow, "Archiv," 1902 (167). (296) have described under this non-committal name certain intra-cellular droplets that may be found in the cortical cells of the normal human adrenal, in pneumonic exudates, tumour cells, retrogressive tissue, corpus luteum, and bronchial secretions. They differ from fat in being doubly refractive, and in staining but faintly grey with osmic acid, although they take up certain fat stains well. Their average size is 4 to 6 microns, and they dissolve in ether and chloroform readily, but poorly in alcohol (Wells, "Chem. Pathol.," 1907, p. 339).

It has recently been discovered that while the interior of the droplets is isotropic the envelope is liquid-crystalline, and that the singular marrow-like shape results from the preponderance of the latter. The contour becomes circular when the envelope is thin (Review in *Nature*, Jan. 7th, 1909).

Adami and Aschoff have demonstrated the occurrence of anisotropic globules in sections cut from the fresh tissue of the adrenal gland. In a section illuminated by ordinary light the sphero-crystals are indistinguishable from common fat globules, but in one illuminated by polarised light they possessed the property of double refraction, and exhibited a well-marked black cross ("Proc. Royal Soc.," B. Vol. 78, 1906).

Dr. C. P. White (*Med. Chron.*, 4th Ser., Vol. XIV., 1907-08) states that in examining frozen sections of carcinomata and other tumours, fixed in formalin, it is common to find masses of fine acicular crystals.

Upon placing such a section on the warm stage and heating, the crystals melt at temperatures varying in different specimens into a group of globules closely resembling fat globules.

In some cases similar globules are found in the section without previous warming.

Dr. White has also seen these globules in some cases of supposed fatty degeneration of the kidney and liver. Normal formalin-fixed adrenals invariably show masses of crystals which become anisotropic globules upon warming and subsequent cooling. The globules contain either cholesterin or fatty acid, or both.

Sometimes along with the globules cylindrical forms are seen which closely resemble the myelin forms seen on treating lecithin with water.

Dr. White considers that these myelin forms are due to variations in surface tension acting on a film of cholesterin-fatty-acid mixtures, formed by the deposition of fatty acid from the solution on the cholesterin.

He further suggests that the formation of unstable

combinations of cholesterin with fatty acids (*not* true esters) may play an important part in fat absorption and fat metabolism, and in other physiological and pathological processes.

Myelin-forms assume an endless variety of shapes, and often show most vigorous movements closely simulating the movements of living organisms.

Still one feels that Lehmann's term, "apparently living crystals," is a grotesque one, and suggests fantastic analogies for which there is no adequate justification.

Yet it is certain that, in the future, chemistry and physics will play a part of constantly-increasing importance in the solution of biological problems (*Nature*, June 24, 1909, p. 507).

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- (b) "Kristallinische Flüssigkeiten und flüssige Kristalle." Dr. R. Schenck. 1905. Engelmann, Leipzig.
- (c) "Feste Lösungen und Isomorphismus." Dr. G. Bruni. 1908. Leipzig.

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#### ART. IV.—*A Trip to India during the Plague Season.*<sup>a</sup>

By MAJOR R. W. H. JACKSON, B.A., M.D., B.Ch., D.P.H. Dubl., &c.; Member Royal Sanitary Institute; Member Society M.O.H.; Royal Army Medical Corps; (R.P.) (late Acting) Senior Medical Officer and Special Health Officer, Jamaica Command; Member of the Central Board of Health, Jamaica; (late) Special Health Officer of Calcutta, &c. Illus.

THE outbreak of plague which occurred in 1908 in Venezuela, and which has since been followed by a few cases in Trinidad, must have caused some uneasiness to the neighbouring governments and peoples, but more anxiety perhaps to the merchants and shipping agents trading with those countries. Yet the terrible suffering, the misery and loss of life, the havoc and disorganisation

<sup>a</sup> Summary of a Lecture delivered at the Conversorium, Kingston, Jamaica, on the 22nd July, 1908.

of business, the changes in social conditions which may be caused by this disease can only, I think, be realised by one who has witnessed the dire effects of the repeated epidemics in India.

It must, however, at once be conceded that the social systems of the peoples of India are peculiar and exceptional, and that in many ways their customs and caste prejudices favour the occurrence and dissemination of plague and hamper the action of the Government of that country as regards the precautions considered essential for its prevention—such action as our Government here in Jamaica is now endeavouring to carry out, relying as I know with confidence on your hearty goodwill and co-operation.

With reference to plague, the proverb "prevention is better than cure" has a special significance.

*Plague Agents.*—The agents chiefly concerned with the development and transmission of plague are plague bacillus, and the rodent animals—especially the rat, the flea, and human beings. These tiny microbes the *B. pestis*, if judged by appearances only, will certainly seem insignificant, mean and contemptible. It is a wretchedly small organism belonging to the vegetable kingdom, being only  $2.3 \mu + 1.7 \mu$  in size: in fact it requires the highest powers of the microscope to make it out, and at least a million will fit comfortably on a pin's head. This bacillus occurs for the most part in the human body as a short, non-motile, non-sporing rod, almost ovoid in shape, generally linked in pairs, and it multiplies by fission. It stains in a characteristic manner with the aniline dyes, and the stalactite form of growth in broth cultures is also peculiar to this bacillus.

Antiseptics readily destroy the infection, a solution of (1-1000) mercuric chloride (corrosive sublimate) or (1-100) of chloride of lime being efficient.

As regards virulence the organism differs much according to the source from which it is obtained and becomes tamed and innocuous by repeated cultivations on arti-

ficial media, but the virulence may again be heightened by inoculation into animals.

In addition to man, many animals are liable to contract plague under natural conditions:—The rat, mouse, monkey, squirrel, bandicoot, and kangaroo. Birds are not easily susceptible: the vultures and kites which constantly roost on, or near, the Towers of Silence in Bombay, and feed on the corpses of the plague-stricken Parsees, do not seem to contract the disease, but become, during an epidemic, rather gouty and apoplectic in appearance.

As you are aware from the eloquent posters<sup>a</sup> of my valued friend the Health Officer of Kingston, which have been posted on all hoardings and corners of the city, this minute bacillus of plague is capable of an immense amount of harm, and it is to be feared that President Castro and his fellow-countrymen may yet have ample cause to regret having treated this microbe with such scant consideration when its arrival was reported to them.

*Antiquity of the Disease.*—The disease is one of great antiquity, being mentioned in the Bible as occurring centuries before the Christian era, having broken out in Canaan during the wars of the Israelites, and even earlier, perhaps during the wanderings of the Tribes in the desert, as the statue of the brazen serpent is considered by some to have been erected during an outbreak of plague. In the language of the Scriptures this dreadful disease is described as “the pestilence that walketh in darkness and destruction that wasteth at noon-day.”

Plague is known to have been epidemic in Southern China for the last one hundred years or so, and over thirty years ago a European traveller found it prevailing in Yunnan, a province in China from which a trade route leads to the city of Canton and thence to the

<sup>a</sup> For copy see page 112.

British possessions at Hong Kong. It is very probable that the existing pandemic of plague sprang from this source.

*How the Bacillus Enters the Body.*—I would wish, with your permission, to give you a short description of the manner in which the plague bacillus strives to gain an entrance into our systems (having first passed through the rat and the rat flea), by local inoculation, and the methods by which our bodies endeavour to defend themselves against the attacks of this baneful microbe, and, indeed, against micro-organisms in general.

It is held as a part of religious belief that the powers of good and evil are constantly warring for the possession of our souls. Professor Metchnikoff has recently shown conclusively that in a similar manner malignant microbes are constantly striving during our lifetimes with our blood for the possession of our bodies wherein to propagate their species, and it is well known to all of us that in this contest these abhorred organisms must eventually succeed.

As I try to explain it to my military hygiene classes in barracks our living bodies are little other than battle-fields where, both in the tissues and in the blood stream, mighty battles are frequently raging between armies of bacteria, micrococci, amœbæ, or even trypanosomata, which attempt to effect a landing and invade us and our gallant friends and defenders the white blood corpuscles (phagocytes and their allies), which sacrifice themselves by the million for our health and welfare, in fact forming a clear demonstration of the eternal conflict between the powers of good and evil.

With this information, and recognising the great importance of keeping our white blood corpuscles in good fighting trim during sickly seasons in tropical climates, we shall now set out on our journey to India.

[The details of the journey and of the cities, places of interest visited by the aid of a magic lantern are omitted.]

“Jehangir's Autobiography” contains the following

MAJOR JACKSON.—“ A Trip to India during the Plague Season.”



The Plague Hospital at Belgaum, Madras.



An Ordinary Case of Bubonic Plague.



account of the plague at Agra:—"At this time those who were loyal represented that the disease of plague (taun) was prevalent in the city of Agra, so that in a day one hundred people more or less were dying of it. Under the armpits or in the groin or below the throat a lump comes and they die. This is the third year that it has raged in the cold weather and disappeared in the commencement of the hot season."

*The Rat.*—The rat, although a scavenger, is yet by instinct a cleanly animal, and while he lives in filthy drains and sewers and feeds on garbage, has yet found it necessary for his health's sake to be most careful to preserve himself from defilement. He has also an intolerable dislike to the presence of insects in his coat. Further, he has a marked objection to tar, and advantage has been taken of this, amongst other means, to induce him to quit. It is only when the rat is aged or sick that he becomes careless of his toilet and begins to harbour fleas and other vermin.

Rats are found to be more susceptible of plague than even human beings, and it is almost invariably noticed that an epizootic of this disease amongst the rat population precedes an epidemic amongst human beings. At such times rats are found dying in great numbers on the wharves and in the grain stores by the sea coast, having been infected by the incoming ships, and they may be seen, as I have witnessed in Poona city streets, struggling along the curb, some sick, some apparently healthy, the latter tamely running up and down in the bright sunshine in a peculiar aimless and bewildered manner, and occasionally one here and there overcome by the disease, rolls over on his back and literally turns up his toes. It is a great mistake to make light of these warnings of the approach of an epidemic. A plague authority in Poona did so, and men were dying at the rate of two hundred a day in the city a few weeks after.

The remedies are: The people must clear out at once on finding dead rats; houses must be suitably disinfected;

the rats must be microscopically examined for plague bacilli.

Strict cleanliness with free ventilation was insisted on at all times in the plague hospitals at Belgaum, and constituted the main safeguard against infection of the relatives and attendants.

*The Flea.*—It is said that fleas have a predilection for particular species of animals, and many varieties of dog fleas, cat fleas, rat fleas, the *pulex irritans* and the *pulex penetrans* or jigger have been described, all only too commonly met with in Jamaica. However, the opinion now appears to be gaining ground that although rat fleas will remain upon rats until their particular host dies, yet, the circulation then ceasing and the body becoming cold, these insects, being only "true till death," soon skip off lively and hasten to search elsewhere for their accustomed nutriment. They will probably seek for another rat, but if on their journey they come across some other animal, possibly a man, they promptly make a meal off him, and, by way of exchange, infect him with plague, thus returning evil for good.

So it is that when rats are dying in large numbers before an epidemic of plague, unattached fleas are found in abundance, and it is inadvisable to walk about in bare feet.

With regard to anti-plague measures for the destruction of fleas, the problem appears to be solved by a suggestion in a Government pamphlet which is quoted in an article by Captain B. B. Burke, R.A.M.C., in the August number of the R.A.M.C. Journal. The following is the quotation:—

"Adult fleas are sucking animals, and take their food in liquid form. Poisons, such as arsenic, which act on the stomach, are clearly useless against such insects unless put into the liquid food, which is impossible, and, as in the case of all insects, the use of a contact poison is necessary—one that will kill the insect on coming into contact with the skin. The flea is covered with chitin,

a hard substance peculiarly resistant to chemicals, and which is not acted on by any substance generally applicable.

"There is but one way in which such an insect as a flea can be attacked, and that is by using a substance that will affect the breathing system: this opens at the sides of the body in minute airholes, and it is known that some substances will kill insects through these openings.

"The absolute destruction of fleas can be generally effected best by thoroughly washing the floors and walls with a suitable emulsion the best insecticide being crude oil emulsion."

Captain Burke states: "The emulsion consists of crude oil 80 per cent. with 20 per cent. whale oil soap. It is a jelly mixing freely with water, and is commonly used at 3 per cent. solution. At 10 per cent. it destroys fleas in any form with perfect certainty. A room thoroughly washed with such an emulsion is freed from all insect life, and the emulsion can be applied with perfect safety, with no risk of fire, with great cheapness, and can afterwards be washed out of the floor with water. With one gallon of the solution a room 12 by 12 could be thoroughly treated in five minutes."

*Description of Plague.*—The disease may be contracted through the respiratory organs (lungs), the digestive tract (by swallowing), or by inoculation.

There are two distinct forms of plague:

I. *Pestis major* (severe or ordinary plague).

II. *Pestis minor* (abortive or larval plague).

The varieties of *pestis major* or ordinary plague are:—

(a) bubonic, (b) pneumonic, (c) septicæmic, (d) pyæmic, (e) local inoculation.

The course of an average attack of ordinary bubonic plague is somewhat as follows:

The period of incubation is from three to seven days. The period of invasion varies greatly in length. Often the onset is quite sudden (case at Karachi), but an interval of from twenty-four to forty-eight hours usually elapses before the

disease shows any of its characteristic symptoms. During this stage, lassitude, weakness and headache, vertigo and vomiting are present, also rigors and fever. With the next stage, or stage of bubo development, the characteristic staggering gait and tremulous speech with restlessness become evident. The temperature is  $104^{\circ}$  and over; the pulse full and quick (130). The very typical tongue—dry, granular, velvety, with yellow fur, and a bright red margin; the pallid, drawn, anxious countenance, and the deeply injected conjunctivæ, leave no doubt as to the diagnosis of plague. Now the buboes, or glandular swellings, which are exceedingly painful and tender, rapidly develop in the groins, armpits, or neck, and confirm the diagnosis. With the development of the bubo the temperature falls as a rule, often from two to three degrees, also the pulse rate. This occurs usually on the second or third day of the disease. The patient appears now much relieved, and the relatives are, in proportion, reassured and hopeful; but this improvement is only transitory and misleading. In twelve hours the fever again sets in, and continues to range between  $103^{\circ}$  and  $105^{\circ}$  for about seven days, when the bubo becomes fully developed. The temperature and pulse rate both gradually drop to about normal on the tenth day, when evidence that matter has formed in the bubo can often be made out. With this stage, which is called suppuration of the gland, the patient enters on a more hopeful period of the disease; the malady, from being one of the whole system, becomes one of a local abscess of greater or less severity, in accordance with the size and position of the abscess. The patient is now much exhausted and emaciated by the fever, the delirium and sleeplessness of the former stage, and that *bête noire* of plague “heart failure” (“cardiac syncope,” in medical language) still threatens, fever of a moderate type may still be present, but the mind has regained its equilibrium, appetite for food returns, and sleep is indulged in for long periods. From this time on, with suitable treatment and careful

nursing, a fairly sure, though usually tedious and protracted, recovery may be expected should none of the many complications or sequelæ of plague occur.

Plague patients with suppurating buboes are seldom fit for discharge from hospital under two months from their admission.

Relapses among plague patients are not common, but I saw two well-marked cases in my hospital at Belgaum.

Pestis minor or ambulatory plague is of frequent occurrence during an epidemic, and persons suffering from it may escape detection.

The general principles of the treatment of plague are to give the patient an abundant supply of free air, to maintain his strength by suitable nourishing food, by the free administration of stimulants, and to keep him lying down to promote sleep by every possible means.

In the last month's number of our Journal, in an article by Lt.-Col. C. Birt, R.A.M.C., the following conclusions of the Report of Indian Plague Commission, 1908, are stated :

- (1) Pneumonic plague is highly contagious (less than 3 per cent. of all cases).
- (2) Bubonic plague in man is entirely dependent on the disease in the rat.
- (3) The infection is conveyed from rat to rat and rat to man solely by means of the rat flea.
- (4) A case of bubonic plague in man is not of itself infectious.
- (5) Plague is usually conveyed from place to place by imported rat fleas, which may be carried by people on their persons or in their baggage.
- (6) The non-epidemic season is bridged over by acute plague in the rat or by bacilli-carriers, accompanied by a few cases amongst human beings.
- (7) The occurrence of epizootics of plague in rats precedes epidemics in man.
- (8) The seasonable prevalence of plague is intimately bound up with the seasonal prevalence of fleas.

In regard to inoculation with Haffkine's prophylactic serum, which is somewhat similar to the vaccination with calf lymph made against small-pox, the latest communication on this subject which comprises the Indian experience gained during the last ten years, shows:—

- (1) That by this inoculation the liability to attack in a native of India is reduced by more than two-thirds.
- (2) That the recovery rate of the inoculated who still contract plague is twice as high as that of the non-inoculated.
- (3) That the immunity conferred by the inoculation seems to last during several epidemics of plague.

As to the diagnosis of plague in rats, it is stated that naked-eye examination, when rats are dying in large numbers, by a competent observer, is more satisfactory than microscopical examination alone.

The primary bubo is most often in the neck, in the case of the rat.

The microscopic examination of the smear taken from the spleens of rats found dead when the introduction of plague is feared is advisable, and, in my opinion, ought to be carried out. Therefore, I would recommend all citizens to report at once to Dr. Ogilvie, Health Officer, any unusual mortality they may have observed amongst rats in their neighbourhood, and especially to have any peculiar diseased looking dead rats conveyed as quickly as possible to the Parade Gardens for further examination.

Before I conclude I would wish again to emphasise the following facts:—

- (1) That the poorer classes suffer most from plague.
- (2) That the incidence of plague is, unlike that of yellow fever, greater among the black than the white races.
- (3) That it is a very mistaken and short-sighted policy to only provide sheds for plague patients to die in, and it is foolish and mischievous to state that there is no treatment for plague.

Plague is, no doubt, a most fatal disease, but a great

deal is done to promote and ensure recovery by suitable hygienic and medical treatment, and by skilful nursing.

It is, further, only too well known that that fatal symptom, "acute cardiac syncope"—which I have told you about—is largely favoured and induced by the exhausted condition in which a large percentage of cases arrive at hospital for admission, and constitutes an important factor in the very high death-rate of plague patients. This exhausted, moribund condition is due to causes which can largely be obviated:—

- (1) By the relatives, if they will bring the case to hospital in the early stage, and not wait until the disease has fully developed, when, indeed, the patient is unfit to be moved; and
- (2) By the municipal authorities, if they will provide suitable conveyances in which to carry the patients to hospital.

A great deal is done to stay the progress of an epidemic of plague by the manner in which plague patients are dealt with and the treatment they receive, and consequently by the reputation plague hospitals earn for themselves amongst the poorer classes.

*Plague Statistics.*—The reported deaths from plague in India in 1904, extracted from official weekly returns, amounted to a total of 1,040,429.

The total number of deaths in India officially recorded from plague between the years 1896 and up to the end of December, 1904, was 3,150,000.

The total number of deaths from plague recorded in the official United States Returns during the month of June of this year is for India 118,128 from November 10th to April 25th, and it is stated that 22 other countries are now infected with this disease.

I venture to submit that the above official figures, some copied from Professor Simpson's valuable book, will adequately support any statement which may appear exaggerated in what I have said regarding the immense possibilities for harm of the plague bacillus.

I have told you nothing regarding the measures to be taken on the occurrence of an outbreak of plague of the sub-division of a city into districts, the appointment of D.M.O.s, the enrolment of volunteer inspectors, &c.

I have told you nothing regarding the likely effects of an epidemic of plague on the products of Jamaica, "of scarcity of labour, of commerce decaying, of loss of trade, of crops ungarnered, of land untilled." Indeed it has been stated that, after "the three fires, two hurricanes, and one earthquake in twenty-five years" an epidemic of plague would be the ruin of this colony. I sincerely trust that it may never come.

### "CAMPAIGN AGAINST RATS.

"CITIZENS OF KINGSTON—

"By recent telegrams from Trinidad we are informed that there have been cases of bubonic plague in that Island, most of which have terminated fatally. That this awful disease should have reached Trinidad was dreaded by all in authority, and especially those cognisant of the intimate relationship that exists between Venezuela and Trinidad.

"Trinidad is brought into closer proximity to Jamaica by the fast steamers of the Royal Mail Co., and other lines to Central America, and this makes it absolutely necessary for the people of Jamaica to take every precaution in their power to prevent the introduction of such an awful scourge to our island.

"This fell disease is most insidious, taking in some instances weeks before it gets fully developed, and cases are on record where two months and more have elapsed between the introduction of the infection and the outbreak of the epidemic. This disease is also more fatal than any known disease, including small-pox, yellow fever, and cholera, and also more difficult to eradicate. Therefore it is absolutely necessary that every citizen should do his best to protect not only his own life and the lives

of those near and dear to him, but also the welfare of the entire community.

“Plague is introduced and propagated by many of the lower animals, rats being the worst offenders in this respect. Mice, squirrels, and monkeys also carry the infection, but in a lesser degree. In fact, there is almost invariably an outbreak of plague amongst rats previous to an epidemic of this disease in man.

“Plague is transmitted from the rats to man by the agency of fleas. It is, therefore, quite evident that personal cleanliness and good and sanitary environment are important adjuncts to the prevention of an outbreak of this disease.

“Writers on this subject in India have shown that persons who habitually walk barefooted are more liable to contract the plague than those who wear boots and shoes.

“Dead rats are invariably found before an epidemic of plague breaks out. The importance of notifying any unusual mortality or sickness amongst these animals is not only advisable but is a duty cast on every citizen of the community.

“Citizens of Kingston keep well in mind the following rules and carry them out:—

“1. Exterminate all rats and mice.

“2. Keep your yards and houses clean and sanitary.

“3. The keeping of cats and dogs is recommended.

“4. Get and keep in touch with the sanitary inspector for the district in which you live.

“This appeal is issued at the instance of the Special Committee appointed by His Excellency the Governor for the Destruction of Rats.

“ROBT. JOHNSTONE,

“*Acting Colonial Secretary and Chairman  
of the Committee.*

“3rd July, 1908.”

ART. V.—*A Case of Thrombosis of the Superior Mesenteric Vein.*<sup>a</sup> By JOHN BURGESS, F.R.C.S.I., L.R.C.P.I.; Assistant Surgeon to the Royal Irish Constabulary.

IN addition to its rarity the interesting points in the case which I have the honour of submitting to you in this paper are—(1) The vagueness and mildness of the early symptoms; (2) The superimposition of a second group which completely masked the preceding; (3) The rapid course to its fatal termination in a few days from a condition of health.

CASE.—In the forenoon, 21st July, on board the Allan R.M.S. “Corsican,” a gentleman passenger, Mr. J. S., complained to me that on the previous day he had suffered from diarrhœa with griping pains in his abdomen. The former had ceased, but the pains had not altogether disappeared. He seemed in no way ill. On the previous evening he had presided at a concert in the second cabin, and during the voyage I might describe him as the life and soul of the ship. He was a stout, florid man, about five feet six inches, aged sixty-five, and, as far as I could judge from a short acquaintance, he was not otherwise than temperate. He informed me that a year previously he had suffered from a similar attack in his home in England, which had yielded to simple remedies.

I prescribed a carminative for him and saw no cause to apprehend any further trouble.

The ship was then nearing Quebec. The weather up the Gulf had been rather warm for this part of Canada, the shade temperature in Quebec registering 88° F. I did not see Mr. S. until late in the evening. He told me that the pain, although not severe, was continuous, and that he had passed no motion or flatus during the day; that he had retched bile (*sic*) three times.

At this time his temperature was normal, his pulse 112, very high tension, heart sounds distinct, no murmur

<sup>a</sup> Read before the Section of Medicine in the Royal Academy of Medicine in Ireland, on Friday, December 16, 1910. [For the discussion on this paper see page 145.]

present. The pain was referred to the left hypochondrium. There was no tympanites, and, although suffering, he made light of his condition. His urine was high-coloured, but contained neither albumen nor sugar.

A symptom which puzzled me at the time was a hyperæsthesia of the rectum. On my introducing my finger he said it gave him great pain, which seemed to run up to the higher area of tenderness in the splenic region. As there was a considerable interval since the last act of vomiting had occurred I gave him 2 ozs. of castor oil with 20m. tinct. opii.

22nd.—He had some sleep during the night. The pain was less; otherwise he was no better. His temperature was sub-normal, pulse 120, wiry in character. There had been one attack of vomiting in the early morning. No motion or flatus had passed. There was absolutely no rigidity, tympanites, or pain on deep pressure of the abdomen. The symptoms present were the continuous pain (by no means severe), the quick pulse, and the rectal tenderness. The vomiting occurred on such few occasions that I do not feel justified in giving it prominence.

At 9 a.m. he was given a turpentine enema, which produced no effect. During the morning he had been restless, shifting his position constantly, and sometimes getting out of his berth to the settee and back again. At 11 a.m. a second turpentine enema was given, with the result he passed a large motion, and at once stated he felt very much better. His tongue at the time was thickly coated, and his breath fetid. I saw him several times during the afternoon, and as we were in Montreal he had several callers during the day, and was able to transact some business, but all the time he was drowsy and inclined to drop asleep, which at the time I attributed to the opium given on the preceding night. Late that evening his temperature was sub-normal, 98°; pulse 120, similar in character; and from his description the pain had become more of the nature of a soreness. He begged me to give him some opium, but seeing no necessity I declined.

I should add fomentations with india-rubber bottles filled with hot water had been all along applied to the painful area.

23rd.—He had a restless night, the pain being sufficient to keep him awake. Otherwise he stated he felt much better. His temperature and pulse were unchanged. He got up,

dressed without my knowledge, and left the ship to proceed to the company's office, where he had some business to finish before proceeding on his way to Western Canada. He had not returned by the afternoon, when I left Montreal for a few days' holidays in the country, so I am indebted to Dr. Widdup, of London, who took charge in my absence, for the next phase of the case. Mr. S. returned to the ship in the afternoon, partook of a light lunch, and, feeling sleepy, went to his berth. He complained of the pain now more in the lumbar region than laterally.

24th.—The steward who attended noticed it took some time to rouse him, and his answers were not intelligible. As he showed no signs of improvement—rather the contrary—as the day progressed, Dr. Widdup was called in, who found him semi-comatose, and had him removed by the ambulance to the Montreal General Hospital, where he was detained.

25th and 26th.—His condition on admission and on the two following days was—Temperature normal, pulse 120, respirations 24; was semi-comatose; could be aroused to answer questions, but his replies were erratic. There was no paralysis; the pupils acted normally. There was no vomiting. The bowels had acted after an enema had been given. There was absence of rigidity of the abdominal muscles. No complaint now of pain. A blood-count was made with negative results as to leucocytosis. Like negative results attended a lumbar puncture. The urine, except showing a slight trace of bile, was normal.

27th.—On this day a change for the better occurred. The comatose condition had disappeared. He could now answer questions intelligibly, and his medical attendants considered him fifty per cent. better. He complained of no pain. Dr. Howard considered the liver dulness slightly pushed up, but *his temperature was now 101°*; pulse 120.

28th.—I was asked to see him early with Drs. Howard and Hale, of Montreal, whose courtesy to me on every occasion could not be exceeded, as they treated me as a personal colleague.

Another change had taken place. We found the patient deeply comatose; face suffused; pupils equally dilated. His breathing was stertorous, without any Cheyne-Stokes character. He was passing urine involuntarily, and his temperature was now 103°. He was restless, rolling from side

to side, perspiring freely; at times trying to get out of bed. There was no paralysis of any muscle group. The pulmonary signs were loud rhonchi over both lungs. This was probably due to transferred sound from the character of the breathing already referred to.

28th.—Dr. Howard thought he noticed a systolic basal murmur which was not there the preceding day. The pulse had become softer, and was 128. His abdomen was very slightly, if at all, distended. The liver dulness was normal in position. We could make out no enlargement of the spleen; but, being a fat subject, a satisfactory examination was difficult. There was no rigidity of the muscles.

We discussed the diagnosis under the following heads :—

1. *Ptomain Poisoning*.—Against this view I pointed out that fifty-two people had been living under the same conditions as the patient for a week, none of whom had showed any symptoms of food disagreeing with them.

2. *Typhoid Fever*, of which there was at the time an epidemic in Montreal, was next considered. The symptoms to me were unusual, but both Drs. Howard and Hale had seen cases beginning like this.

3. *Cerebro-spinal Fever*.—As I mentioned, a lumbar puncture brought off a clear fluid which microscopically was found not to contain any organism, and there was absence throughout of Kernig's sign.

4. Uræmic and diabetic coma were for obvious reasons eliminated.

On being asked to give an opinion, and bearing in mind the condition for which he was sent to hospital, differing so much from his early symptoms, I said that to me the case looked like either a cerebral hæmorrhage which did not implicate the motor area or the result of sunstroke, and if left to myself to treat I would take ten ounces of blood from his arm.

This was done, but was not of the smallest benefit; the coma deepened, and he died the following morning at 4 a.m.

I insert Dr. Hale's account of the autopsy :—

“ The liver showed a marked grade of atrophic cirrhosis, the typical hob-nailed, alcoholic variety, with thrombosis of the superior mesenteric vein, as high up as the junction with the splenic ; two loops of small intestine were ecchymosed, partly gangrenous, were adherent to each other and to the mesentery of the sigmoid ; there was no perforation of the bowel, and there were about 150 c.c. of free fluid in the peritoneum. Other findings, including the head, negative.

“ The conclusion arrived at is that the coma was due to cholæmia, and that, together with the products of gangrenous bowel, caused death. The cause of the mesenteric thrombosis is obscure in any case, but here was probably predisposed to by the cirrhosis.”

It would be outside the scope of such a paper as this to go into the various causes of clots in the portal system, opinion being divided as to whether the cirrhosis produces the clot or *vice versâ*.

Langdon Brown maintains that cirrhosis may set up thrombosis by a state of the blood by which the endothelium of the veins is injured ; but he also states that both these conditions may be caused by an altered condition of the blood itself.

Bohr and Delayentel state that in the healthy portal system the power of the blood to coagulate is at its lowest.

Woodridge showed by experiment that an artificial thrombosis of the portal system could be produced by the injection of tissue fibrinogens.

Osler stated that he saw no cause whereby an obstruction in the portal system should set up cirrhosis of the liver.

I merely mention the above to bring out my own view as to the cause of the clot in the superior mesenteric vein, in which I think the part played by the diseased liver was remote.

In Langdon Brown's<sup>a</sup> series of forty-one cases of

<sup>a</sup> St. Bartholomew's Hospital Reports. 1891.

pyelephlebitis I can find only two instances where the superior mesenteric vein was directly affected. In the records of Rolleston <sup>a</sup> and others on thrombi in the portal area I discovered one other.

Those cases where the portal veins and principal branches—the splenic and mesenteric—were occluded are of course outside the present subject.

Welch has collected thirty-two cases of thrombosis of this vein, and has pointed out, from the anatomical situation of the superior mesenteric artery and vein, which receive no accessory supply from the parietal vessels, that the occlusion of either is followed by extensive gangrene of the jejunum.

In Taylor's case <sup>b</sup> this occurred from a fibrous band constricting the duodenum and obliterating the superior mesenteric vessels.

In Fagge's case ("Trans. Path. Society, London, 1876"), there had been previous thrombosis of the iliac veins following pregnancy. In both these cases the onset was sudden with violent abdominal pain, vomiting and collapse, death taking place in forty-eight hours.

In Dr. Rose Bradford's <sup>c</sup> patient the symptoms came on similarly, followed by diarrhœa on the third day, then an improvement, to be followed by stercoraceous vomiting and death on the fourteenth day.

In two cases operations had been performed—the omentum being fastened to the parietal peritoneum—which were of no avail.

A coincidence noticed by two of the aforementioned observers was the absence of rigidity of the abdominal muscle and of tympanites as in my case, conditions which one would expect to be in evidence in so severe a lesion as the present.

In this case the onset was acute, and although there was at no time either hamatemesis or intestinal

<sup>a</sup> Diseases of Gall Bladder and Ducts.

<sup>b</sup> System of Medicine. Allbutt and Rolleston. 1899.

<sup>c</sup> British Medical Journal. 1898.

hæmorrhage, and the symptoms might be described as milder than the classical variety, yet the progress to the fatal issue was throughout rapid.

If we follow the symptoms by the light of the autopsy I submit this is what took place. The condition of hepatic cirrhosis was of old standing; although not interfering with the patient's general health, it was significant of an altered state of alimentary absorption. On the top of this an acute enteritis occurs; as a result, the epithelium of the small intestine is further impaired, so that absorption of bacteria or other products sets up thrombosis, which extends to the trunk of the superior mesenteric vein. At this point symptoms of intestinal obstruction with pain, quick pulse, and subnormal temperature present themselves.

Parenthetically, here I may be permitted to point to the four symptoms attributed by Welch to thrombosis of this vein :—

- (1) Sudden colicky pain in the abdomen not localised.
- (2) Vomiting, possibly of blood.
- (3) Constant and bloody diarrhœa.
- (4) Subnormal temperature and rapid collapse.

To continue. The result of this was hæmorrhagic infarction and gangrene of the portion of the small intestine mentioned. This, according to Dr. Hale, would cause the rectal tenderness, which otherwise we could not account for.

The nervous symptoms (coma, &c.) could be accounted for by the well-known experiment of Schiff, who found that after tying the portal vein in animals, substances such as small quantities of nicotine and hyoscyamine, otherwise harmless, produced fatal coma. Of course, against this may be argued there was no portal obstruction. Still the blood from the affected area did not flow through the liver, and in its unfiltered condition got into the general circulation by one of the several anastomosis. By this means, added to the cholæmia, was a direct absorption from a gangrenous intestine.

The late rise of temperature was due to peritonitis.

In conclusion, perhaps to justify myself, let me point out there was a case of severe and rapidly fatal abdominal disease with what might be called paradoxical symptoms. There were undoubtedly pain, vomiting, and constipation, but unaccompanied by tenderness on deep pressure, tympanites, or rigidity of the muscles.

The pain, to one accustomed to see patients with abdominal symptoms, was never severe; it was nagging in character. The vomiting occurred only four times. An enema relieved the constipation. On the other hand there was the marked drowsiness on the second and third day, the coma followed his being out for some time under a hot sun. The general appearance of the patient when I saw him in the hospital, especially the late rise in temperature, made me believe we should find the cause of death within the skull—not in the abdominal cavity.

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#### LITERARY INTELLIGENCE.

FOR several years Dr. Eden, Obstetric Physician to Charing Cross Hospital, has been engaged in writing "A Manual of Gynæcology" as a companion volume to his successful "Manual of Midwifery." The object of this book is to present a comprehensive account of the diseases of women from the standpoint of pathology and treatment. The work will consist of 750 pages in small royal octavo size. It will contain 300 illustrations, the drawings for which have been specially made for the purpose. The date of publication was fixed for the middle of January. Dr. J. B. Hurry, of Reading, whose investigations and writings on the subject of "vicious circles in diseases" are already well known, has written a book on the subject. It will be ready in a few weeks. The publishers of the above books are Messrs. J. & A. Churchill, Great Marlborough Street, London. W.

## PART II.

### REVIEWS AND BIBLIOGRAPHICAL NOTICES.

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#### YEAR-BOOKS FOR 1911.

1. *An Almanack for the Year of Our Lord 1911.* By JOSEPH WHITAKER, F.S.A. London: 12 Warwick Lane, Paternoster Row. Cr. 8vo. Pp. 971.
2. *Whitaker's Peerage, Baronetage, Knightage, and Companionage for the Year 1911.* London: 12 Warwick Lane, Paternoster Row, E.C. Demy 8vo. Pp. xvi + 812.

WITH commendable punctuality these valuable Year-Books appeared early in December. In both volumes the Accession of King George V. necessitated a great number of changes in the official sections. These have all been made with care; but in the Almanack, at page 485, there is a curious mistake, by which the surgeon to the Vice-Regal Household, the Surgeon-Oculist and the Surgeon-Dentist to H. E. the Lord Lieutenant of Ireland are represented as being members of His Majesty's Household in Ireland. These officers should be included in the list of the Lord Lieutenant's Household at the foot of the same page. The only other slip we noticed was the misprint, on page 447, of "*Olympia*" for "*Olympic*," the largest liner in the world, launched at Belfast on October 20.

Among the new features in this year's Almanack are comprehensive tables of the monetary units of the World and of the weights and measures of the principal Countries (pages 419 to 434). An account of the Government and Constitution of the Union of South Africa finds a place for the first time among the African Dominions (pages 546 to 551).

Editors of Year-Books and Almanacks have small reason to thank those politicians who have contrived to have two general elections within eleven months. Mr. Whitaker has done his best to cope with the difficulties arising from so

unusual an occurrence. The Almanack contains the results of the General Election of January, 1910, and the Editor has arranged to provide a supplement giving the facts relating to the new House of Commons elected in December, 1910. This will be sent free of charge, except postage, to all purchasers of the Almanack who apply for it on a special form.

The pages of the Almanack are, as usual, brimful of information of all kinds—astronomical, meteorological, social, political, financial, geographical, sporting, educational, legal, and dramatic. We may add that each successive annual issue is really a year's history of the World.

The section of the "Peerage" which will attract most attention this year is the Introduction. In it will be found a very full account of King George's Accession and the formalities attendant thereon, and also a graphic description of the Coronation of King Edward VII. on August 9, 1902.

Over and over again we have had occasion to consult the pages of Whitaker's Peerage, and never in vain, for the information we desired to have. It is one of the best works of the kind which is published.

*A Text-book of General Bacteriology.* By EDWIN O. JORDAN, Ph.D., Professor of Bacteriology in the University of Chicago and in Rush Medical College. Philadelphia and London: W. B. Saunders Co. 1910. Pp. 594.

THE second edition of Jordan's General Bacteriology has appeared within two years of its first publication, the first edition having meanwhile been reprinted twice. This is good evidence of the popularity of the book, which is no doubt due to its comprehensive nature and general excellence. This second edition, although not much larger than the first, has some corrections, some additions, and is as much as possible brought up to date.

The book itself is the outgrowth of lectures given to students in the University of Chicago, and the author's aim throughout has been to make the subject of interest not only to students of Medicine, but also to those of Agriculture, Sanitary Science, and various industries. For this reason it has a wider range

than the handbooks in most use in this country. Naturally the main portion of this book is given up to the organisms of human disease, the pathogenic plants and animals, including the bacteriology of those dangerous commodities, water and milk. There are chapters on: "The Nitrogen Cycle"—that is, the rôle played by bacteria in breaking down waste organic materials and making the resulting nitrogenous substances and the free nitrogen of the air available for plant use—and also on the uses of bacteria in the arts and industries, and on the bacterial diseases of plants.

Of course, a book of some 590 pages cannot give a complete account of all that is worth knowing of a very large subject, but there is sufficient on such subjects as the root nodules of leguminous plants, the curing of tobacco, or the diseases of the cabbage and potato, to lay the foundation and point out the path for extensive work.

The chief drawback to the use of Jordan's Bacteriology as a text-book in this country is that it shows its American origin in the greater weight placed on those diseases of animals and plants which are of more importance in that country, and in the references to the work of American investigators rather than to that of Europeans.

The spelling used is of the mild American type, and the illustrations are good, having been selected for the most part from the best of those previously published.

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*The Diseases of Children.* By JAMES F. GOODHART, M.D., LL.D. Aberd.; F.R.C.P.; Consulting Physician to the Evelina Hospital for Sick Children; Consulting Physician to Guy's Hospital. Ninth Edition. Edited by GEORGE FREDERIC STILL, M.A., M.D., F.R.C.P.; Professor of Diseases of Children, King's College, London; Physician for Diseases of Children, King's College Hospital; Physician to Out-patients, the Hospital for Sick Children, Great Ormond Street. London; J. & A. Churchill. 1910. 8vo. Pp. xvi + 931.

THAT this work has run through eight editions is proof

that it has met with the approval of the profession. Little is required of us, therefore, beyond pointing out some of its special features, and especially those of the present edition. The chapters on feeding and diet diseases are thoroughly practical, not too prolix or faddy. Of the diseases common to adult as well as child life the special points in which peculiarities appear and difficulties arise in childhood are those to which attention is directed, and we are not wearied with a recount of all the signs and symptoms with which we are well familiar as found in any general text-book of Medicine. Special diseases, rare disorders, and out-of-the-way conditions are fully and carefully considered and brought up to date. The sections on "Treatment" are, on the whole, practical, definite, and full. As this is often *the* important section to a country or a young practitioner we regret to notice exceptions, of which one important example will suffice. The dietetic treatment of typhoid fever is thus given:—"The food must be fluid or pultaceous—such as soaked biscuit, custard, milk, beef-tea, broth or light soup. Should the stomach be inclined to reject these. even lighter materials must be given—milk and lime-water or milk and water, whey and artificially-digested milk or blancmange." These are all the instructions there are for feeding a child in typhoid fever, and we consider they are entirely too vague. Without going into the question of our personal views about the quality of the food recommended, we consider that, in this disease at least, the quantity is of supreme importance, and is the very point on which the inexperienced practitioner wants definite guidance. There is nothing, however, here to guide him whether he is to order one pint or two quarts of "fluid or pultaceous" food; whether it is to be given every five minutes or every five hours!

In this edition for the first time some illustrations are added—about thirty in all. A few might be dispensed with, but the great majority are highly instructive, illustrating rare conditions and important types.

The printing is clear and good. The various headings,

such as "symptoms," "prognosis," "treatment," are clearly brought out by heavy type. Appendices are added of useful formulæ for the treatment of various general disorders, recipes for sundry diets, and directions for the care of children with infantile paralysis. There is a copious and exhaustive index.

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*A System of Syphilis.* In Six Volumes. Edited by D'ARCY POWER, M.B. Oxon., F.R.C.S.; and J. KEOGH MURPHY, M.D., M.C. Cantab., F.R.C.S. With an Introduction by SIR JONATHAN HUTCHINSON, F.R.S. Vol. VI. Introduction, SIR ALFRED KEOGH, K.C.B., LL.D. (*Hon. Causâ*). The History and Epidemiology of Syphilis in the More Important Armies, C. H. MELVILLE, Lieut.-Colonel R.A.M.C. Pathology and Microbiology of Syphilis as Applied to the Public Services, L. W. HARRISON, Captain R.A.M.C. Clinical Course and Treatment of Syphilis in the Army, C. E. POLLOCK, Major R.A.M.C. Noteworthy Features of Syphilis in the Navy of the United States of America, C. N. FISKE, M.D. (Harv.), Surgeon United States Navy. Epidemiology of Syphilis in the Royal Navy, E. P. MOURILYAN, Fleet Surgeon R.N. The Practical Treatment, afloat, of Syphilis in the Royal Navy, CHARLES K. BUSHE, M.D., Staff Surgeon R.N. The Value of Justus' Test in the Diagnosis of Syphilis, W. P. YETTS, Staff Surgeon R.N. London: Henry Frowde, Hodder & Stoughton, Oxford University Press. Royal 8vo. Pp. 514 + xix. (69 Plates, Figures, Tables, and Charts.)

WE have now received the sixth and final volume of a "System of Syphilis," edited by D'Arcy Power, M.B. Oxon., F.R.C.S., and J. Keogh Murphy, M.C. Cantab., F.R.C.S. A glance at the announcement under which this review is written will reveal the scope of the present volume. The work is a record of syphilis as it pertains to, affects, and is treated in the more important navies and armies, especially those of the British Empire.

So far as the various collaborators in the book confine themselves to describing the ætiology, diagnosis, and treatment of syphilis they are orthodox, but when they digress and discuss the ethics rather than the hygienic aspects of the repealed Contagious Diseases Acts we believe that they do not express the opinions held by the majority of the Medical Profession, or even of the Services they represent. In the latter instance we remember that when this subject was discussed in 1907 in the Royal Academy of Medicine of Ireland, the Army medical men who took part in the debate approved of legislative measures, Colonel Butt stating that "his own experience of his last three years in India had led him to the conviction that the disease could be stamped out." Again, in the Royal Commission appointed to consider the subject, we find that in the Blue Book, dated 28th July, 1881, one of the committee stated (Q. 729) that the Army medical men "are unanimously in favour of the Acts." And in speaking of the Profession as a whole that—"They cannot overlook the very general opinion of the medical profession, both in and outside of the subjected districts, who on hygienic grounds strongly advocate the maintenance of the Acts." We include these quotations, not because of anything said by the authors to the effect that they voice the general opinion of the profession, but because we are convinced that the views they express are antagonistic to those of the vast majority of medical men. We may add, perhaps, without seeming to strain the point, that every commission appointed by the Government to inquire into the utility, &c., of the Acts, without exception, reported in their favour.

Sir Alfred Keogh states that the experience of the Continent proves that legislative measures are unsuccessful. Granted that they are but partially so; yet this assertion does not seem to be supported by the following figures taken from the First Report of the Advisory Board for the Army Medical Services, 1904 (formerly reviewed in these pages). Sir Alfred Keogh was himself a member of the sub-committee that drew up the report referred to.

“COMPARISON OF INCIDENCE OF VENEREAL DISEASES IN  
EUROPEAN ARMIES.”

	German.	French.	Austrian.	Italian.	British.
1886-1890 (average annual)	27.1	51.1	65.3	94.3	212.4
In 1900	17.8	37.2	59.8	89.7	93.4

Neither Italy nor Great Britain has legislative measures, whilst the others have. The upper line shows that the combined figures for the German, French, and Austrian armies stand to those of Great Britain as 143.5 is to 212.4. It will be remembered that in 1900 the British troops were engaged in South Africa, and also that a soldier who contracts syphilis is not considered efficient for active service till twelve months have elapsed since his obtaining the disease. It is fair to conclude that men having the honour of their regiment at heart would naturally avoid anything that would prejudice unfavourably their regiment's claim to go to the front. This may explain the low figure in 1900.

Lieut.-Colonel Melville believes that much improvement has occurred in the Army as a result of temperance, and he pleads for a high ideal to be placed before the young soldier. Undoubtedly this would be the most advantageous course, if practicable. Moral societies have existed for thousands of years, and sin, like the poor, is still with us. In the evolution of high ideals we fancy that men will cease to fight before they cease to sin, and this being so legislation might be the wiser policy to pursue in order to maintain physical efficiency amongst our soldiers. Coincidentally all moral and social measures for the men should be zealously encouraged.

Captain L. W. Harrison's contribution to the volume is entitled "Pathology and Microbiology of Syphilis as Applied to the Public Services." This article is one of the best items in the entire "System of Syphilis," and is not surpassed by any similar monograph we have read in the literature of the subject.

Should we desire to convince the most obstinate opponents to the merits of the Contagious Diseases Acts

we could not desire greater proof of their value than the facts detailed in Fleet Surgeon Mourilyan's account of the "Epidemiology of Syphilis in the Royal Navy." The remaining articles in the book are authentic and excellent descriptions of the subjects with which they deal. They contain nothing calling for special comment.

The volume will be indispensable to naval and army medical men, and is obviously intended for their use. Civil practitioners will find it interesting, and those who have not read the preceding volumes will obtain much new information on the subject of syphilis.

The editors and publishers are deserving of the highest praise for their enterprise in supplying at rare expense so complete and magnificent work as their "System of Syphilis." The System contains several monographs which will for a long time be regarded as classics. The work itself will be the standard source of reference for both English-speaking people and Continental practitioners.

S. S.

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*Archives of the Middlesex Hospital.* Vol. XIX. Ninth Report from the Cancer Research Laboratories. Edited for the Cancer Investigation Committee by W. S. LAZARUS BARLOW, M.D., F.R.C.P.; Director of the Cancer Research Laboratories; formerly Pathologist and Lecturer on Pathology at the Westminster Hospital. London: Macmillan & Co., Ltd. New York: The Macmillan Co. July, 1910.

THIS volume commences with tabulated synopses of cases of malignant disease during the year 1909, set forth by the director and his assistants. Dr. Lazarus Barlow continues his investigation on the skotographic substance in tissues, and identifies it with ammonia gas.

J. C. Mottram deals in two papers with the sodium and potassium contents of the blood and tissues in normal and carcinomatous cases and also in the carcinomatous tumours themselves. In cancer the blood, liver, spleen, and kidneys have an increased potassium content.

H. H. Colwell shows that cancerous growth does not appear to affect directly autolysis, but that this process is increased or diminished by the presence of salts of one or other of the monad metals.

In a further communication the same author shows that malignant disease does not affect the catalase content of the tissues.

H. Beckton has been studying the presence or absence of Altmann's granules in normal tissues and new growths. Their absence denotes malignancy. They are present in embryonic tissue as well as in adult life. They are sometimes, but not always, present in mouse tumours.

The pathological anatomy of tumours irradiated by pitchblende is dealt with by Musgrave Woodman and others. The supposed actions of soamin, atoxyl, neoformans vaccine, and Coley's fluid are also considered.

There are several other papers dealing with individual forms of cancer from a statistical or histological standpoint. An interesting case of chloroma is reported. Tumours occurring in dogs receive attention, while the volume concludes with two pages by Somerville Hastings dealing with the action of chemical and physical agents on the development of ova and larvæ.

Altogether the report indicates a great deal of useful work done, and it will be read with benefit not alone by those who take interest in the pathological problems but by all who may wish to employ any of the physical or chemical agents which have lately been put forward as aids to combating the fell disease cancer.

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*Dyspepsia. Its Varieties and Treatment.* By W. SOLTAU FENWICK, M.D.; late Physician to the Eveline Hospital for Sick Children. Philadelphia and London: W. B. Saunders Co. 1910.

WE have read Mr. Soltau Fenwick's book with some interest, as any book which attempts to deal with the complex phenomena denoted by the term dyspepsia, from the personal knowledge and experience of the author, is well

worthy of attention. We cannot say that the present volume adds much to the general sum of knowledge of the subject with which it deals, but at the same time the method of exposition is such as to produce in the mind of the reader more definite pictures of the various functional disorders of the stomach than can be obtained from a perusal of many kindred works. The classification adopted divides dyspepsia into the two well-defined varieties of gastric and intestinal dyspepsia; the former variety is considered under eight different headings, and receives about 400 out of a total of 450 pages. A useful table for distinguishing some of the different forms of gastric dyspepsia is given early in the work, but it rather errs on the side of too great simplicity. If one were to rely on this table alone the differential diagnosis of gastric disorders would be indeed an easy matter, but then it would be essential to be provided at the outset by an assurance that none but patients suffering from functional gastric disorders would think of asking for one's opinion. This criticism is, indeed, to some extent disarmed by the subsequent explanation of the table embodied in the full description of each of the disorders, for the author clearly points out that many of the "dyspepsias" may result from organic disease, and that one should never be satisfied by the mere determination of the variety of disorder present without endeavouring to determine its cause; still, as it stands, the table seems to us decidedly misleading owing to its simplicity.

In his general methods of investigation and treatment the author seems to hold fairly orthodox opinions. He is willing, for example, to admit that gastro-diaphany may afford useful information; but that such a method of examination should be essential when the investigator is possessed of the proper use of his five senses is at least doubtful, and we feel that he is only wise in discarding it for all but demonstrating purposes. On the other hand, we cannot admit that artificial inflation of the stomach carefully carried out after the passage of a tube is anything but useful; nor do we agree with the author that

auscultatory percussion is to be recommended. The chapter on dyspepsia due to foreign bodies contains some curious tales of more interest than practical importance, and is followed by an important chapter on the dyspepsias of the extremes of life. In the chapter on intestinal dyspepsia the subject is discussed systematically, but one cannot help feeling that the writer is here less at home than when dealing with gastric disturbances. We note that Cammidge's urinary pancreatic reaction is described, but the writer omits to say whether he has himself employed the test, and what results he has obtained. He does, indeed, state that "a positive reaction occurs in almost every case of genuine chronic pancreatitis," but this statement appears to be more a quotation than a result of personal experience.

To sum up, the book is clearly written in an interesting style. The classification adopted is scientific and facilitates systematic thought on the subject of dyspepsia. Careful attention has evidently been paid by the author to the subject, and in consequence the exposition of his methods and conclusions deserves the consideration of the profession.

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*A Handbook of Intestinal Surgery.* By LEONARD A. BIDWELL, F.R.C.S.; Surgeon, West London Hospital; Lecturer on Intestinal Surgery, and Dean of the Post-Graduate College; Consulting Surgeon to the Blackheath and Chorlton and Diss Hospitals, &c. Second Edition, 1910. London: Baillière, Tindall & Cox. 1910. Pp. xiv + 215.

THE advances in connection with Intestinal Surgery have called forth the appearance of the present edition of Mr. Bidwell's well-known manual. All the generally-accepted methods of intestinal suture and anastomosis are described and illustrated as well as some that we might consider obsolete, such as the pyloroplasty of Mickulicz, suture of intestine over Halsted's air cylinder, and the methods of performing anastomosis of intestine over

bobbins, methods which, from a historical point of view, are, no doubt, interesting, but they hold no place in modern intestinal surgery. Many of the imperfections of the first edition are still retained in the present volume. No doubt the student can acquire much information as to the methods of performing intestinal operations from a perusal of this handbook, but it requires considerable improvement before it will reach the standard of excellence required for its recommendation.

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*Surgical Diagnosis.* By ALEXANDER BRYAN JOHNSON, Ph.B., M.D.; Professor of Clinical Surgery in the Columbia University Medical College; Attending Surgeon to the New York Hospital; Visiting Surgeon to the Mount Moriah Hospital; Consulting Surgeon to St. Joseph's Hospital for Rockaway; Fellow of the American Surgical Association; Member of the New York Surgical Society. Volume III. With one Coloured Plate and 274 Illustrations in the Text. New York and London: D. Appleton & Co. 1910. Pp. xviii + 810.

THE subject-matter with which this volume deals is that of the Spine, the Nerves, the Pelvis, and the Extremities, while there is an appendix of some 48 pages in which will be found a *résumé* of some recent papers on miscellaneous subjects, such as polycystic kidney, the parathyroid glands, recent improvements in X-ray apparatus and X-ray technique, the technique of the microscopic examination for the detection of the Spirochæte pallida of syphilis, exophthalmic goitre and hyperthyroidism, and some additional data in regard to the diagnosis of organic lesions of the brain and the regional diagnosis of brain lesions and tumours. This volume well maintains the high standard of excellence which our perusal of the first and second volumes led us to expect. The first 116 pages are devoted to a consideration of the diagnosis of lesions of the spine and spinal cord and nerves, and for general excellence it would be hard to beat it. Here and there we

notice trivial omissions which are almost unavoidable in such an extensive work. For example, in the differential diagnosis of Pott's caries everything that might be mistaken for that condition is mentioned except "hysterical spine," and again, no mention is made of the differential diagnosis of the various conditions which may produce paraplegia in connection with Pott's caries, but these are trifling omissions, and do not detract from the general excellence and value of the work. The remaining subjects are treated in an equally able and practical manner, and we have no hesitation in stating that these three volumes taken together form by far the best work on the subject of surgical diagnosis with which we are acquainted. It is a work which is obviously the result of considerable practical experience, and which should find a place in the library of every surgeon. A full and complete index of authors and subjects adds considerably to the value of the work, on the completion of which we desire to offer the author our heartiest congratulations.

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*Modern Surgery: General and Operative.* By JOHN CHALMERS DA COSTA, M.D.; Professor of Surgery and Clinical Surgery in Jefferson Medical College, Philadelphia; Surgeon to the Philadelphia General Hospital; Consulting Surgeon to St. Joseph's Hospital, Philadelphia; Fellow of the American Surgical Association; Member of the American Physiological Society; Membre de la Société Internationale de Chirurgie; Member of the Medical Reserve Corps, U.S.A. Sixth Edition. Thoroughly revised and enlarged, with 966 Illustrations, some of them in colours. Philadelphia and London: W. B. Saunders Company. 1910. 8vo. Pp. 1502.

It would be impertinence on our part, and more or less waste of time and space, to write an exhaustive review of a treatise such as that before us, which in the few years since its first appearance has reached its sixth edition. The mere mention of the appearance of a work in its sixth

edition is sufficient guarantee for the standard of excellence of its contents. Many are the advances which have taken place since the appearance of the fifth edition, less than three years, and their incorporation in the present edition has increased its size by over 200 pages.

Amongst these advances particular mention must be made of the advances in the surgery of the vascular system, especially arteriorrhaphy, arterio-venous anastomosis, and the work of Crile, Matas, Carrel, and Murphy on this entire subject. Cushing's work on the brain, Bier's intravenous local anæsthesia, the advances in our knowledge of the parathyroid glands, and the Wassermann's reaction in connection with syphilis have all received special attention in the volume before us. In the treatment of syphilis the author still prefers the treatment by mouth to the intramuscular injection method now so commonly used, while at the same time he seems to consider that a two years' continuous treatment with mercury is sufficient to cure. No matter what may be said of the author's view as to the method of administration, few authorities will agree that a two years' course of mercury by mouth is sufficient to cure and cause the parasymphilitic affections to disappear to the vanishing point.

We consider the book most thoroughly up-to-date, and generally eminently sound in its teaching. It still remains one of the leading books on surgery for the student's use. We have been enabled to strongly recommend former editions, and we are pleased to be able to strongly recommend the edition at present under review.

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*Pye's Elementary Bandaging and Surgical Dressing.*  
Twelfth Edition. Revised and partly re-written by  
W. H. CLAYTON-GREENE, F.R.C.S.; assisted by V.  
ZACHARY COPE, F.R.C.S. Bristol: John Wright &  
Sons, Ltd. 1910. Pp. 235.

THIS book hardly needs an introduction. Students, when beginning their work in the surgical wards have found it

useful, and will, we venture to say, find this competently-revised edition still more useful. The little book is within its own limits very complete, having, in addition to the subjects of the title a section devoted to the immediate treatment of accidents and emergencies, including cases of poisoning. Moreover, there are nearly one hundred illustrations in this convenient-sized book, which may be considered as a sound investment for students and surgical nurses.

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*Surgery of the Brain and Spinal Cord.* By PROF. FEDOR KRAUSE, M.D.; Gth. Medizinalrat; Dirigierender Arzt am Augusta-Hospital zu Berlin. Translated by PROF. HERMAN A. HAUBOLD, M.D.; Clinical Professor in Surgery, Bellevue Hospital and New York University Medical College; Surgeon to Harlem and New York Red Cross Hospitals, &c. Vol. I. With 63 Figures in the Text, 24 Coloured Plates, and one Half-tone Plate. London: H. K. Lewis. 1910. Pp. xx + 282.

THE volume under review is devoted to the Surgery of the Brain. It is purely practical, and gives us the technique of its distinguished author, who wishes it to be understood that he does not attempt to offer a text-book but merely to submit his own personal experiences in the surgery of the central nervous system. Nothing of symptoms or signs or methods of diagnosis will be encountered in the perusal of this work—it is entirely operative—but frequent references are to be found to illustrative cases which the author had encountered in his work.

The book opens with a consideration of what may be termed general principles, such as the methods of trephining, the formation of an osteoplastic flap, the temporary control of hæmorrhage, the methods of dealing with hæmorrhage from the diploë, the dura, and sinuses, and the method of opening the dura mater, as well as the methods adopted for exposure of the various portions of the brain. Leptomeningitis chronica, œdema of the

arachnoid and the various forms of intracranial cysts are treated, and the procedures beautifully illustrated. In the succeeding sections we find the treatment of intracranial tumours, including gumma and tuberculosis, fully described. In some cases the two-stage method of Horsley is recommended, while in others the entire operation is completed at one sitting. The treatment of abscess of the brain is next described and illustrated, after which the author's methods of operating upon basal tumours is detailed and illustrated as well as the procedure of exposing the pituitary body. What may be termed post-operative treatment is next described as well as a method of performing a decompression operation for the relief of pressure in otherwise inoperable tumours. The decompression operation advocated and illustrated, though efficient, is not, in our opinion, as satisfactory as that of Cushing, so far as position and protection to the protruding brain are concerned. Still the author is not oblivious of the work of Cushing, for he produces many arguments in favour of his own operation and against that of Cushing.

The work is eminently practical from beginning to end, and the illustrations, which are most numerous, are works of art. No surgeon can afford to be without the book, and the translator deserves the thanks of all who cannot read the original for placing so practical a book before them.

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*Puerperal Infection.* By ARNOLD W. W. LEA, M.D., B.S. (Lond.), F.R.C.S. (Eng.), B.Sc. (Manch.); Lecturer in Obstetrics and Gynaecology, the University, Manchester; Surgeon, Northern Hospital for Women. London: Henry Frowde and Hodder & Stoughton. Cr. 4to. 1910. Pp. xvi and 384. With numerous Plates. Oxford Medical Publications.

WE congratulate Dr. Arnold Lea most heartily on the very important work which he has produced. The subject of puerperal infection is one which has for a long

time required the services of a competent author, and this, from what we have seen of Dr. Lea's book, he has entirely proved himself to be.

His book may roughly be divided into two parts—the first of which deals in a most thorough manner with what may be termed the scientific side of his subject—*i.e.*, the terminology, bacteriology, and pathology of puerperal infection; while the second deals with the practical side—*i.e.*, its diagnosis, its prophylaxis, and its treatment. We regret that considerations of space prevent us from reviewing the book at the length it deserves. Its first part is wholly admirable, and contains the best *resumé* that we know of the existing work which has been done on puerperal infection, while the conclusions Dr. Lea draws from the many conflicting opinions with which he has to deal are, in the main, sound. Particularly interesting is his account of the part played by the different varieties of streptococci in pregnancy, labour, and the puerperium, and if in the end he is forced to enunciate somewhat negative conclusions it is the result of the obscurity of his subject, and not of any want of care on his part. There are few matters of which it is more difficult for the practical obstetrician to assess the value than of the presence of streptococci in the lochial secretion of puerperal women. In some cases they are evidently and positively the sign of a grave infection, while in others they are associated with a normal recovery. Great hopes of a means of distinguishing the virulent from the non-virulent forms were raised by the suggestion that their relative hæmolytic properties might prove to be a test; but further observations have shown that this hope cannot yet be realised.

The practical portion of the book is almost equally important, but here as Irishmen we must confess to a feeling of disappointment. Successive Masters of the Rotunda Hospital have been responsible for the practical introduction into British obstetrics of almost all the landmarks of asepsis and antisepsis. They were the first in these countries to prove the uselessness, not to say danger,

of *ante-* or *post-partum* douching, to lessen the number of vaginal examinations, to insist on effective hand sterilisation, and later on the use of rubber gloves, and to publish for a long succession of years accurate statistics of the results of the treatment they advocated. As a result of this, in a table showing the mortality and morbidity of maternity hospitals, appearing on page 29 of Dr. Lea's book, the percentage number of febrile cases at the Rotunda is shown to be the second lowest in the world, and the percentage mortality to be the lowest. It is then just a little strange to find that the only reference to Irish work, in a book which brims over with references, is to be found in this table, which places the Rotunda Hospital in these particulars at the head of all maternity hospitals. The omission is, indeed, so pointed that the least we can say of it is that it is ungenerous, and that even if Dr. Lea does not wish to be generous he ought to be just.

With this exception we have nothing but praise for Dr. Lea's work. Its arrangement, its style, and in almost all particulars its teachings seem to us to be good. There are, of course, minor points in treatment on which we hold different opinions, but that is bound to be so. We can thoroughly recommend the work to all those who are interested in the cause and prevention of puerperal infection.

*A Manual of Diseases of the Nose, Throat, and Ear.* By E. B. GLEASON, M.D., LL.D. Second Edition. Philadelphia and London: W. B. Saunders Company. 1910. 8vo. Pp. 563.

THIS book is now in its second edition, and has been much improved by the addition of new matter. It should be classed among the smaller text-books, but the author has succeeded in compressing a great deal of information into a small space. Among some of the salient features may be mentioned:—

1. An excellent formulary at the end of the book.

After each drug or combination of drugs is a short note comprising the indications for its use and the best method by which to apply it. This feature we have never seen in a text-book of a similar nature. Such notes should prove most helpful.

2. A very full account of the usual methods of conducting a test of hearing.

3. A good account of the operations on the middle ear and the complications following on suppuration of that important space. If a criticism might be offered, the information is too advanced for the ordinary practitioner to take full advantage of it.

The publishers are to be congratulated on the excellent way in which the book is turned out, especially as regards the printing and the binding.

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*Manual of Human Embryology.* Edited by FRANZ KEIBEL, Professor in the University at Freiberg i. Br. and FRANKLIN P. MALL, Professor of Anatomy in the Johns Hopkins University, Baltimore, U.S.A. In two Volumes. Philadelphia and London: J. B. Lippincott. 1910. Volume I. Svo. Pp. xviii + 548.

THIS manual represents the labour of a large number of distinguished American and German embryologists, and is undoubtedly the most important work upon human embryology which has appeared for many years. The names of the editors and the list of distinguished embryologists who have contributed chapters to the book are a guarantee of the worth and interest of the manual. We are told in the introduction, written by Keibel, that the idea of the work originated with the late Professor His. When it is remembered how deeply the teaching and methods of His have influenced the workers on the American Continent it is not surprising to find so large a number of American embryologists among the authors jointly responsible for the manual.

Keibel contributes the first six chapters—namely, those dealing with “The Germ Cells,” “Fertilisation,” “Segmentation,” “Young Human Ova and Embryos up to the

Formation of the First Primitive Segment," "The Formation of the Germ Layers and the Gastrulation Problem," and "A Summary of the Development of the Human Embryo and the Differentiation of its External Form." These chapters treat the difficult subjects indicated in a clear and lucid manner, and no attempts are made to gloss over difficulties by introducing figures, or description of stages, or processes, which so far have not been observed in the human embryo. Indeed, one of the charms of the book is the clear manner in which the gaps in our knowledge of the embryonic history of man are indicated and attention is drawn to useful fields for future research.

The chapter upon "The Development of the Egg Membranes and the Placenta and upon Menstruation" is from the pen of O. Grosser (Prague), and three chapters upon "The Determination of the Age of Human Embryos and Fetuses," "The Pathology of the Human Ovum," "The Development of the Cœlom and Diaphragm," are by F. P. Mall.

Chapters dealing with "The Development of the Integument" by Felix Pinkus (Berlin), "The Development of the Skeleton and of the Connective Tissue," by C. R. Bardeen (Madison, U.S.A.), and on "The Development of the Muscular System," by W. H. Lewis (Baltimore), are also included in the first volume of the manual. As each writer is a recognised specialist in the subject-matter entrusted to him the work may be regarded as a series of authoritative and critical essays upon the various problems connected with man's embryonic history.

We must not omit to mention the interesting introduction, in which Keibel gives short historical notes of the great advances which have from time to time been made in our knowledge of embryonic development of man.

The manual undoubtedly marks a great advance in human embryology, and will always form a landmark in the history of the study of the subject. We look forward eagerly to the appearance of Volume II., which will complete the work, and which is promised at an early date.

PART III.  
MEDICAL MISCELLANY.

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*Reports, Transactions, and Scientific Intelligence.*

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ROYAL ACADEMY OF MEDICINE IN IRELAND.

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President—SIR CHARLES BALL, F.R.C.S.I.  
General Secretary—J. A. SCOTT, M.D., F.R.C.S.I.

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SECTION OF MEDICINE.

President—SIR JOHN MOORE, M.D., F.R.C.P.I.  
Sectional Secretary—F. C. PURSER, M.D., F.R.C.P.I.

*Friday, December 16, 1910.*

THE PRESIDENT in the Chair.

*Celiac Axis Aneurysm treated by Operation. Introduction  
of Wire Tent.*

DR. LUMSDEN showed a man, aged thirty-eight, brewery labourer, who had been engaged at a somewhat heavy class of work—piling casks. History of syphilis sixteen years ago. Served in the army sixteen years. Dyspeptic symptoms since beginning of year. Abnormal epigastric pulsation first noticed last August on admission to Mercer's Hospital. In September last a tumour the size of an orange felt in epigastrium extending upwards under left costal arch. Impulse of a forcible and expansile character. A bruit heard below lump and conveyed along aorta to both femorals. Femoral pulses readily to be felt. Heart normal but for accentuation of aortic second sound. Pulse tension triflingly high. Blood pressure in radial 110 m.m. Hg. No pains of any kind complained of. Diagnosis was saccular aneurysm of aorta probably from celiac axis neighbourhood. Patient

was placed on large doses of iodide of potassium, complete rest in recumbent position with a modified Tufnell's diet. No improvement taking place, after consultation with Mr. Wheeler operation was decided on.

*Operation for Abdominal Aneurysm.*

MR. W. I. DE C. WHEELER described the evolution of surgery of the abdominal aneurysm. The case exhibited resembled the vast majority in being a male, having a specific history and having the aneurysm springing from the region of the cœliac axis.

Mr. Wheeler operated seven weeks ago and introduced into the sac 150 inches of gilded wire in the form of a cage by the method of Colt and D'Arcy Power. For the first few days the aneurysmal pulsation was more tumultuous than before the operation, but since then there has been a distinct diminution of pulsation and hardening of the tumour.

The operation was performed with the strictest aseptic precautions, and was facilitated by placing a sand-bag under the patient's back and tilting the table so that the pelvis and feet were low, and the intestines fell away into the pelvis (Mayo Robson's gall-bladder position). There was no hæmorrhage.

Mr. Wheeler pointed out that statistics demonstrated a small percentage of cures in the cases operated upon, but that the prognosis was hopeless when operation was not possible, Osler and other authorities never having seen a cure under medical treatment. *Post-mortem* examinations of cases which died even a short time after operation revealed a firm, laminated clot in which the wire was embedded.

Electrolysis was not employed in this case, as there is not sufficient experimental evidence of its value in inducing coagulation. The risk of sepsis is increased owing to the prolongation of the operation and the difficulty of sterilisation of insulated instruments and electrical apparatus.

Colt's instrument makes the operation very easy and very safe.

In conclusion Mr. Wheeler referred to the differential diagnosis and the causes of failure in many of the early operations. His was the first patient exhibited in Dublin after operation for abdominal aneurysm.

DR. WALTER SMITH said the case was, as far as he knew, the first demonstrated in Dublin. The main subject for congratulation was that the patient had survived, though living after an operation was no proof that it prolonged life, and patients had lived with an untreated aneurysm. He hoped none of his friends would ever introduce wire into his aorta, as he considered the operation both unpathological and unscientific. The only chance of cure was by nature laying down tough, laminated fibrin. A foreign body might induce embolism, and was very dangerous.

DR. PARSONS recalled a case in which the symptoms began in 1896, and the patient did laborious work until within two years of his death in 1906. He thought the chances of repeating such a successful result as Mr. Wheeler's were very small.

DR. KIRKPATRICK said he believed the patient to be in a much safer position than before the operation. He did not see why, because clotting was induced by a foreign body, it should be a soft clot and remain so. He thought the clot, if it completely filled the aneurysm, would become hard. The results had shown firm clotting, with no liability to the production of emboli. Operative technique had greatly improved, and there was good reason to hope that such cases could be operated on without sepsis. If the surgeon could make sepsis a rarity, instead of a common occurrence, the operation would probably be attended with a very much smaller mortality, and possibly with a very much greater number of cures.

DR. H. STOKES inquired as to the collateral circulation set up.

DR. LUMSDEN, in reply, said that medical treatment of aneurysm in the past had been distinctly unsatisfactory. He had himself had four cases under his care—three men and one woman. The woman died suddenly six months after diagnosis, and no cause of death was discovered. One of the men died suddenly three months after diagnosis. There was no *post-mortem*, but he believed the aneurysm had burst. The third case had been operated on six years ago by Mr. Maunsell, who introduced twenty-four feet of wire, and performed electrolysis, but the aneurysm perforated through to the stomach, and the patient died about the fifth day. The *post-mortem* gave a beautiful picture of a lami-

nated clot, showing the process of healing going on. The present patient had been getting worse before the surgeon took him over, and now he was much better, and he thought there was fair hope for the future.

MR. WHEELER, in reply, said that death was the result in nearly every case without operative treatment. The *post-mortem*, in cases where operation had been done, showed not a soft clot, but a laminated clot, sometimes consolidated altogether, so that he did not see how the operation could be regarded as unscientific. Collateral circulation was well established, though by what means he did not know. No cases published, without operation, showed any cures; while there had been cures in every series with operation, so that he thought the operation was undoubtedly justifiable.

#### *A Case of Thrombosis of the Superior Mesenteric Vein.*

DR. J. J. BURGESS read the account of a case of this lesion. [His paper will be found at page 114.] The interest in this individual case was the comparative mildness of the abdominal symptoms and the prominence of those of a cerebral type, so that the finding at the autopsy was a surprise. The very few cases of primary thrombosis of this vein was referred to from the lists of forty-one cases of Langdon Brown and sixty of Rolleston. The case was acute, and terminated fatally in eight days with gangrene of portion of the jejunum. The marked feature was the early development of coma, the partial recovery from which and its return with symptoms of cerebral compression, evidently toxæmic.

DR. DRURY said it was only once in a lifetime that such cases were met with, and the paper should enable them to come to a reasonable conclusion if a similar case should happen to present itself.

DR. WALTER SMITH said he had seen one or two cases of the condition, though not quite the same—the symptoms were more acute. In one case a correct diagnosis was made *ante-mortem*, relying on sudden abdominal pain and bloody stools. In Dr. Burgess's case the difficulties of correct diagnosis were almost insuperable. Thrombosis occurred in both mesenteric vessels, but there was a curious clinical difference between them—arterial mesenteric thrombosis was much more acute, and venous much more chronic in

nature. The condition was rare, and it was very difficult to make out a cause for the thrombosis. The subject would, he thought, always remain one of difficulty, though possibly there might be a few cases in which an early diagnosis might be made, and surgical aid be called in.

THE PRESIDENT said that about three years ago he saw, in consultation, a very stout, elderly lady, who had been suddenly attacked by vomiting, intense abdominal pain, and bloody diarrhoea, and they ventured on a diagnosis of thrombosis of the superior mesenteric artery. After death it was difficult to get a *post-mortem*, but the lady's medical attendant was able to make an incision with the ostensible object of relieving very extreme tympanites, and in this way he investigated the abdominal viscera, and found a very extensive gangrene of the intestine.

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#### A JOURNALISTIC VENTURE (OR ADVENTURE).

A JOURNALIST named Giloni, unusually well endowed with the enterprising spirit peculiar to that calling, determined to know something of lunatic asylums from within, with the humane idea to ameliorate the lot of the insane. He presented himself at the gate of the Cimarosa Asylum, and asked for an audience of the King of Italy. The attendants showed him the door; then he ran foul of the police, and finally got himself satisfactorily interned in the asylum. The doctors, evidently suspecting his good faith, began work on him with a powerful emetic; this was followed by a shower-bath, after which came vaccination. They held a consultation in the presence of the lunatic, and brutally but unanimously agreed that the patient was to be trephined for a cancer of the brain. By this time Signor Tommaso Giloni thought the best thing he could do was to confess; the doing which landed him in the police station. The magistrate, however, released him, concluding mercifully that he thought the doctors had administered sufficient punishment.—*The Australasian Medical Gazette*, Nov. 21, 1910.

# SANITARY AND METEOROLOGICAL NOTES.

## VITAL STATISTICS.

*For four weeks ending Saturday, December 31, 1910.*

### IRELAND.

THE average annual death-rate represented by the deaths—exclusive of deaths of persons admitted into public institutions from without the respective districts—registered in the week ended December 31, 1910, in the Dublin Registration Area and the twenty-one principal provincial Urban Districts of Ireland was 16.8 per 1,000 of their aggregate population, which for the purposes of these returns is estimated at 1,151,790. The deaths registered in each of the four weeks ended Saturday, December 31, and during the whole of that period in the several districts, alphabetically arranged, correspond to the following annual rates per 1,000. In some cases, owing to deaths not having been registered within the week in which they occurred, the rates do not fairly represent the weekly mortality:—

Towns, &c.	Week ending				Average Rate for 4 weeks	Towns, &c.	Week ending				Average Rate for 4 weeks
	Dec. 10	Dec. 17	Dec. 24	Dec. 31			Dec. 10	Dec. 17	Dec. 24	Dec. 31	
22 Town Districts	19.6	19.6	19.1	16.8	18.8	Lisburn -	13.6	13.6	18.2	31.8	19.3
Armagh -	—	13.7	20.6	—	8.6	Londonderry	15.6	20.4	18.0	16.8	17.7
Ballymena	33.5	14.4	23.9	9.6	20.3	Lurgan -	13.3	48.7	35.4	22.1	29.9
Belfast -	20.1	17.7	17.6	12.1	16.9	Newry -	12.6	25.2	21.0	29.4	22.0
Clonmel -	25.6	15.4	15.4	20.5	19.2	Newtownards	17.2	11.4	22.9	11.4	15.7
Cork -	13.7	20.5	17.1	25.3	19.1	Portadown	31.0	15.5	31.0	15.5	23.2
Drogheda -	8.2	24.5	12.3	12.3	14.3	Queenstown	6.6	26.4	19.8	26.4	19.8
Dublin -	23.2	19.8	21.6	18.9	20.9	Sligo -	—	9.6	4.8	9.6	6.0
(Reg. Area)						Tralee -	37.0	10.6	5.3	10.6	15.9
Dundalk -	12.0	8.0	27.9	16.0	16.0	Waterford	7.8	35.1	13.6	17.5	18.5
Galway -	7.8	19.4	19.4	15.5	15.5	Wexford -	14.0	23.3	23.3	18.7	19.8
Kilkenny -	34.3	29.5	24.6	—	22.1						
Limerick -	13.7	21.9	10.9	28.7	18.8						

The deaths (excluding those of persons admitted into public institutions from without the respective districts) from certain epidemic diseases registered in the 22 districts during the week ended Saturday, December 31, 1910, were equal to an annual rate of 1.0 per 1,000, the rates varying from 0.0 in fourteen of the districts to 5.2 in Portadown, the 3 deaths from all causes for that district including one from diphtheria. Among the 91 deaths from all causes registered in Belfast is one from scarlet fever and one from whooping-cough. Of the 14 deaths from all causes registered in Londonderry one is from diarrhoea and 3 are from whooping-cough, and included in the 37 deaths from all causes registered in Cork are 2 from whooping-cough. Of the 21 deaths from all causes registered in Limerick, one is from whooping-cough. One death from measles is included in the 5 deaths from all causes registered in Lurgan; and one of the 7 deaths from all causes registered in Lisburn is also from measles.

#### DUBLIN REGISTRATION AREA.

The Dublin Registration Area consists of the City of Dublin as extended by the Dublin Corporation Act, 1900, together with the Urban Districts of Rathmines, Pembroke, Blackrock, and Kingstown. The population of this area is 398,356, that of the City being 306,902, Rathmines 36,567, Pembroke 28,506, Blackrock 8,759, and Kingstown 17,622.

In the Dublin Registration Area the births registered during the week ended Saturday, December 31, 1910, amounted to 170—84 boys and 86 girls; and the deaths to 155—68 males and 87 females.

#### DEATHS.

The deaths registered represent an annual rate of mortality of 20.1 in every 1,000 of the population. Omitting the deaths (numbering 9) of persons admitted into public institutions from localities outside the Area, the rate was 18.9 per 1,000. During the fifty-two weeks ending with Saturday, December 31, the death-rate averaged 21.1, and was 2.9 below the mean rate for the corresponding portions of the ten years 1900–1909.

The total deaths (155) included one death from measles, 7 from whooping-cough, 2 deaths from scarlet fever, and one death from epidemic diarrhoea of a child aged one year. The death of an infant under one year of age from enteritis was also registered, and there was one death from influenza. In each of the three

preceding weeks deaths from measles had been 2, one, and 0; deaths from diarrhoeal diseases had been 2, 2, and 2; deaths from influenza had been 2, one, and 3; deaths from scarlet fever had been one, one, and 0; and deaths from whooping-cough had been 11, one, and 5, respectively.

Of 11 deaths from pneumonia (all forms) there were 5 deaths from broncho-pneumonia, 2 deaths from lobar pneumonia, and there were 4 deaths from *pneumonia* (not defined).

The deaths (24) from all forms of tuberculous disease included 19 from tubercular phthisis (*phthisis*), one from tubercular meningitis, one from tubercular peritonitis, and 3 deaths from other forms of the disease. Deaths from all forms of tuberculous disease in the three preceding weeks had been 36, 18, and 26, respectively.

There was one death from sarcoma, and 5 deaths from cancer, malignant disease (undefined).

Of 11 deaths attributed to diseases of the brain and nervous system, 4 were those of infants under one year of age, and one that of an infant aged one year and 9 months, from *convulsions*.

Diseases of the heart and blood-vessels caused 31 deaths, and bronchitis caused 23 deaths.

Of 4 deaths caused by accident or negligence, one was caused by a tramcar, and one was that of a child aged 3 years, by burns.

One death by homicide and one by suicide were recorded.

In six instances the cause of death was "uncertified," there having been no medical attendant during the last illness. These cases include the deaths of 4 children under 5 years of age (including 2 infants under one year old), and the death of one person aged 69 years.

Forty-seven of the persons whose deaths were registered during the week were under 5 years of age (25 being infants under one year, of whom 6 were under one month old), and 50 were aged 60 years and upwards, including 31 persons aged 70 and upwards, of whom 14 were octogenarians.

The Registrar-General points out that the names of the cause of death printed above in italics should be avoided whenever possible in Medical Certificates of the Cause of Death.

#### STATE OF INFECTIOUS DISEASE IN THE DUBLIN REGISTRATION AREA AND IN BELFAST.

The usual returns of the number of cases of infectious diseases

notified under the "Infectious Diseases (Notification) Act, 1889," and the "Tuberculosis Prevention (Ireland) Act, 1908," as set forth in the following table, have been furnished by Sir Charles A. Cameron, C.B., M.D., Medical Superintendent Officer of Health for the City of Dublin; Mr. Fawcett, Executive Sanitary Officer for Rathmines and Rathgar Urban District; Mr. Manly, Executive Sanitary Officer for Pembroke Urban District; Mr. Heron, Executive Sanitary Officer for Blackrock Urban District; by the Executive Sanitary Officer for Kingstown Urban District; and by Dr. Bailie, Medical Superintendent Officer of Health for the City of Belfast.

TABLE SHOWING THE NUMBER OF CASES OF INFECTIOUS DISEASES notified in the Dublin Registration Area (viz.—the City of Dublin and the Urban Districts of Rathmines and Rathgar, Pembroke, Blackrock, and Kingstown), and in the City of Belfast, during the week ended December 31, 1910, and during each of the preceding three weeks. An asterisk (\*) denotes that the disease in question is not notifiable in the District.

CITIES AND URBAN DISTRICTS	Week ending	Small-pox	Measles	Rubella, or Epidemic Rose Rash	Scarlet Fever	Typhus	Relapsing Fever	Diphtheria	Membranous Croup	Pyrexia (origin uncertain) <sup>a</sup>	Eiteric or Typhoid Fever	Erysipelas	Puerperal Fever	Whooping-cough	Cerebro-spinal Fever	Tubercular Phthisis ( <i>Phthisis</i> )	Total
City of Dublin	Dec. 10	-	•	•	16	-	-	10	-	1	1	1	-	•	-	8	37
	Dec. 17	-	•	•	9	-	-	19	-	4	5	10	-	•	-	8	54
	Dec. 24	-	•	•	15	-	-	9	1	3	7	6	-	•	-	8	49
	Dec. 31	-	•	•	26	-	-	10	-	1	4	2	-	•	-	14	57
Rathmines and Rathgar Urban District	Dec. 10	-	•	•	2	-	-	2	-	-	1	1	-	•	•	•	6
	Dec. 17	-	•	•	1	-	-	3	-	-	1	-	-	•	•	•	5
	Dec. 24	-	•	•	2	-	-	5	-	-	-	2	-	•	•	•	9
	Dec. 31	-	•	•	-	-	-	4	-	-	3	-	-	•	•	•	7
Pembroke Urban District	Dec. 10	-	•	-	2	-	-	-	-	-	1	1	-	5	-	-	11
	Dec. 17	-	•	-	1	-	-	1	-	-	-	-	-	1	-	-	6
	Dec. 24	-	•	-	2	-	-	1	-	-	-	-	-	6	-	-	11
	Dec. 31	-	•	-	-	-	-	-	-	-	1	1	-	1	-	-	10
Blackrock Urban District	Dec. 10	-	•	•	-	-	-	2	-	-	-	-	-	•	-	•	2
	Dec. 17	-	•	•	-	-	-	2	-	-	-	-	-	•	-	•	2
	Dec. 24	-	•	•	-	-	-	-	-	-	-	-	-	•	-	•	-
	Dec. 31	-	•	•	-	-	-	1	-	-	-	-	-	•	-	•	1
Kingstown Urban District	Dec. 10	-	•	•	-	-	-	-	-	-	-	-	-	•	•	-	-
	Dec. 17	-	•	•	-	-	-	-	-	-	-	-	-	•	•	-	-
	Dec. 24	-	•	•	-	-	-	-	-	-	-	-	-	•	•	-	-
	Dec. 31	-	•	•	-	-	-	-	-	-	-	-	-	•	•	-	-
City of Belfast	Dec. 10	-	•	•	32	-	-	3	-	1	-	2	1	•	-	16	55
	Dec. 17	-	•	•	26	-	-	5	-	1	1	3	1	•	-	11	48
	Dec. 24	-	•	•	23	-	-	2	-	-	2	4	4	•	-	14	45
	Dec. 31	-	•	•	19	-	-	4	-	-	-	3	2	•	-	8	36

<sup>a</sup> Continued Fever.

## CASES OF INFECTIOUS DISEASES UNDER TREATMENT IN DUBLIN HOSPITALS.

During the week ended December 31, 1910, 7 cases of measles were admitted to hospital, one was discharged, there was one death, and 22 cases remained under treatment at its close.

Nineteen cases of scarlet fever were admitted to hospital, 14 were discharged, there were 2 deaths, and 122 cases remained under treatment at the close of the week. This number is exclusive of 21 convalescents from the disease under treatment in Beneavin, Glasnevin, the Convalescent Home of Cork Street Fever Hospital. At the close of the 3 preceding weeks the cases in hospital had been 113, 101, and 119 respectively.

Nineteen cases of diphtheria were admitted to hospital, and 6 were discharged. The cases in hospital, which, at the close of the 3 preceding weeks had numbered 51, 64, and 53 respectively, were 66 at the close of the week under notice.

Eight cases of enteric fever were admitted to hospital during the week, 4 were discharged, and 36 cases remained under treatment in hospital at the close of the week, the respective numbers in hospital at the close of the three preceding weeks being 32, 35, and 32.

In addition to the above-named diseases, 6 cases of pneumonia were admitted to hospital, 7 were discharged, there were 2 deaths, and 21 cases remained under treatment at the end of the week.

## ENGLAND AND SCOTLAND.

The mortality in the week ended Saturday, December 31, in 77 large English towns, including London (in which the rate was 14.5), was equal to an average annual death-rate of 14.1 per 1,000 persons living. The average rate for 8 principal towns of Scotland was 14.7 per 1,000, the rate for Glasgow being 14.5, and for Edinburgh, 14.8.

## INFECTIOUS DISEASE IN EDINBURGH.

The Registrar-General has been favoured by A. Maxwell Williamson, M.D., B.Sc., Medical Officer of Health for Edinburgh, with a copy of his Return of Infectious Diseases notified during the week ended December 31. From this report it appears that of a total of 60 cases notified, 24 were of scarlet fever, 14 of phthisis, 16 of diphtheria, 5 of erysipelas, and one was of enteric fever.

Among the 458 cases of infectious diseases in hospital at the close of the week were 247 cases of scarlet fever, 30 of measles, 57 of phthisis, 27 of whooping-cough, 78 of diphtheria, 4 of enteric fever, 9 of erysipelas, 3 of chicken-pox, and one of puerperal fever.

#### METEOROLOGY.

*Abstract of Observations made in the City of Dublin, Lat. 53° 20' N., Long. 6° 15' W., for the Month of December, 1910.*

Mean Height of Barometer,	-	-	-	29.595 inches.
Maximal Height of Barometer (30th, at 9 p.m.),	30.437	..		
Minimal Height of Barometer (10th, at 3 a.m.),	28.570	..		
Mean Dry-bulb Temperature,	-	-	-	44.4°.
Mean Wet-bulb Temperature,	-	-	-	42.9°.
Mean Dew-point Temperature,	-	-	-	41.1°.
Mean Elastic Force (Tension) of Aqueous Vapour.	.260	inch.		
Mean Humidity,	-	-	-	88.8 per cent.
Highest Temperature in Shade (on 23rd),	-	55.4°.		
Lowest Temperature in Shade (on 28th),	-	30.2°.		
Lowest Temperature on Grass (Radiation) (28th),	27.8°.			
Mean Amount of Cloud,	-	-	-	61.9 per cent.
Rainfall (on 25 days),	-	-	-	5.565 inches.
Greatest Daily Rainfall (on 1st).	-	-	-	.773 inch.
General Directions of Wind,	-	-	-	W.. S.W.

#### *Remarks.*

A very mild, wet month. There had not been such a large rainfall in December in Dublin since 1876, when, however, 7.566 inches fell, compared with 4.408 inches in 1909 and 5.565 inches in the present month. Rain fell daily on the first 16 days to the large amount of 5.210 inches. After the 16th the rainfall was only .355 inch, but it was distributed over 9 of the 15 days, so causing the month to retain its character of wetness. As regards temperature also, December, 1910, was a month of surprises, for the mean temperature was 3.7° above that of the previous month, and only once—on the 28th—did the thermometer fall below 32° in the screen in Dublin.

In Dublin the arithmetical mean temperature (44.5°) was 2.5° above the average (42.0°); the mean dry-bulb readings at 9 a.m. and 9 p.m. were 44.4°. In the forty-six years ending

with 1910, December was coldest in 1878 (M.T. =  $32.8^{\circ}$ ), and in 1874 (M.T. =  $36.8^{\circ}$ ); warmest in 1898 (M.T. =  $47.6^{\circ}$ ), and in 1900 and 1905 (M.T. =  $47.1^{\circ}$ ).

The mean height of the barometer was 29.595 inches, or 0.280 inch below the corrected average value for December—namely, 29.875 inches. The mercury rose to 30.437 inches at 9 p.m. of the 30th, having fallen to 28.570 inches about 3 a.m. of the 10th. The observed range of atmospheric pressure was, therefore, 1.867 inches.

The mean temperature deduced from daily readings of the dry-bulb thermometer at 9 a.m. and 9 p.m. was  $44.4^{\circ}$ , or  $4.7^{\circ}$  above the value for November, 1910. Using the formula *Mean Temp.* = *Min.* + (*Max.* — *Min.*  $\times .52$ ), the value was  $44.6^{\circ}$ , or  $2.5^{\circ}$  above the average mean temperature for December, calculated in the same way, in the thirty-five years, 1871–1905, inclusive ( $42.1^{\circ}$ ). The arithmetical mean of the maximal and minimal readings was  $44.5^{\circ}$ , compared with a thirty-five years' average of  $42.0^{\circ}$ . On the 23rd the thermometer in the screen rose to  $55.4^{\circ}$ —wind, S.W.; on the 28th the temperature fell to  $30.2^{\circ}$ —wind, W.S.W. The minimum on the grass was  $27.8^{\circ}$  on the 28th. There was only one day of frost in the screen, and only 3 nights of frost on the grass were recorded.

The rainfall was 5.565 inches, distributed over 25 days. The average rainfall for December in the thirty-five years, 1871–1905, was 2.250 inches, and the average number of rain-days was 17. The rainfall, therefore, was much more than double, while the rain-days were considerably in excess of the average. In 1876 the rainfall in December was very large—7.566 inches on 22 days. In 1868 (which was otherwise a fine and dry year), 4.749 inches fell on as many as 27 days; and in 1909, 4.408 inches on 21 days. On the other hand, in 1867, only .771 inch was measured on 13 days; in 1885, only .742 inch on 10 days; in 1892, only .795 inch on 10 days; and in 1871, only .797 inch on 15 days.

High winds were noted on 15 days, and attained the force of a gale on three occasions—the 2nd, 8th, and 16th. The atmosphere was more or less foggy in Dublin on the 4th, 5th, and 6th. Hail fell on the 16th. A lunar halo was seen on the 17th; a lunar corona on the 12th, 15th, 17th, and 25th; and a solar halo on the 31st. There was a faint aurora on the 24th.

The rainfall in Dublin during 1910 amounted to 35.439 inches on 219 days, compared with 26.939 inches on 193 days in 1909.

23.753 inches on 198 days in 1908, 26.994 inches on 218 days in 1907, 22.807 inches on 203 days in 1906, 25.277 inches on 193 days in 1905, 22.180 inches on 189 days in 1904, 31.601 inches on 228 days in 1903, 29.375 inches on 203 days in 1902, 26.075 inches on 179 days in 1901, only 16.601 inches on 160 days in 1887, and a thirty-five years' (1871-1905) average of 28.000 inches on 198 days.

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At the Normal Climatological Station in Trinity College, Dublin, Mr. W. H. Clark, B.A., reports that the mean height of the barometer was 29.595 inches, the range of atmospheric pressure being from 28.639 inches at 9 a.m. of the 10th to 30.445 inches at 9 p.m. of the 30th. The mean value of the readings of the dry-bulb thermometer at 9 a.m. and 9 p.m. was 45.1°. The arithmetical mean of the daily maximal and minimal temperatures was 44.8°. The screened thermometers rose to 56.0° on the 23rd, and fell to 30.1° on the 28th. On the 28th also the grass minimum was 22.8°. Rain fell on 25 days to the amount of 5.259 inches, the greatest fall in 24 hours being .821 inch on the 1st. The duration of bright sunshine, according to the Campbell-Stokes recorder, was 19.8 hours, of which 2.8 hours occurred on the 27th. The mean daily sunshine was 0.6 hour. The mean temperature of the soil at 9 a.m. was 43.3° at a depth of 1 foot; at a depth of 4 feet it was 45.6°.

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Mr. R. Catheart Dobbs, J.P., reports that, at Knockdolian, Greystones, Co. Wicklow, the rainfall in December was 7.655 inches on 20 days. Of the total amount 1.230 inches fell on the 9th. From January 1st to December 31st, 1910, rain fell at Knockdolian on 182 days, to the total amount of 40.595 inches.

At Clonsilla, Greystones, Dr. W. S. Ross recorded a rainfall of 7.66 inches on 20 days. The maximum in 24 hours was 1.27 inches on the 10th. The mean air temperature was 40.4°. The thermometer rose to 56° on the 24th, and fell to 30° on the 28th.

Dr. J. T. Crowe reports a rainfall of 8.24 inches on 20 days at the Royal National Hospital for Consumption for Ireland, Newcastle, Co. Wicklow, the maximal fall in one day being 1.31 inch on the 9th. The mean temperature of the month was 43.8° (mean max., 47.9°, mean min., 39.7°), and the extremes were—highest, 56.2° on the 24th; lowest, 30.0° on the 28th.

Mr. T. Bateman reports that the rainfall at The Green, Malahide,

Co. Dublin, was 4.585 inches on 21 days. The greatest fall in 24 hours was .97 inch on the 1st. The mean shade temperature was 40.2°, the extremes being—highest, 50.5°; lowest, 25°.

Dr. Christopher Joynt, F.R.C.P.I., recorded a rainfall of 6.165 inches on 25 days at 21 Leeson Park, Dublin. On the 1st, .880 inch was recorded, and on the 15th the measurement was .770 inch. The total rainfall for the year was 37.692 inches.

Mrs. Olive F. Symes returns the rainfall at Druid Lodge, Killiney, at 5.85 inches on 20 days. The maximal fall in 24 hours was .93 inch on the 1st. The average December rainfall for the 24 years (1885-1908) at Killiney was 2.342 inches on 17.6 days.

Dr. Arthur S. Goff reports that at Lynton, Dundrum, Co. Dublin, rain fell on 25 days to the amount of 7.04 inches, .95 inch being measured on the 1st. Temperature ranged from 55.0° on the 23rd to 30.0° on the 28th. The mean shade temperature was 44.3° Fahrenheit.

Mr. George B. Edmondson recorded a rainfall of 7.28 inches on 25 days at Manor Mill Lodge, Dundrum, Co. Dublin. The greatest measurement in 24 hours was .92 inch on the 1st. The mean temperature of the month was 42.9°, the range of the thermometer being from 54° on the 23rd to 27° on the 28th.

At Cheeverstown Convalescent Home, Clondalkin, Miss C. Violet Kirkpatrick measured 5.52 inches of rain on 25 days, .87 inch falling on the 1st and .74 inch on the 8th.

At Ardgillan, Balbriggan, Co. Dublin, 210 feet above the sea, Captain Edward Taylor, D.L., recorded a rainfall of 5.31 inches on 23 days. The differences from the averages of 17 years were + 2.54 inches of rain and + 4 days. The rainfall in 1910 at Ardgillan amounted to 34.71 inches on 202 days, being an excess of 4.95 inches and of 13 days. The maximal temperature in the shade during December was 52.9°, recorded on the 23rd, and again on the 24th. The minimum was 28.4° on the 28th.

At Cork, according to Mr. W. Miller, the December rainfall was 4.62 inches on 27 days, the measurement being only 0.01 inch more than the average, while the rain-days were 6 in excess. The greatest daily rainfall was 1.22 inches on the 15th. The year's rainfall at this station was 38.56 inches on 225 days, the total being 0.56 inch over the average, while the rain-days were 28 in excess.

The Rev. Arthur Wilson, M.A., reports that rain fell on 26 days at the Rectory, Dunmanway, Co. Cork, to the amount of

6.48 inches. The heaviest fall was 1.33 inches on the 15th. The rainfall for the year was 54.47 inches on 244 days, being .56 inch and 19 days more than the respective averages of the past 5 years.

Mr. W. Holbrow returns the rainfall at Derreen, Kenmare, Co. Kerry, at 8.91 inches on 29 days. The maximum in 24 hours was 1.46 inches on the 15th. The total rainfall in 1910 at Derreen was 67.79 inches on 245 days. In September only 1.20 inches fell on only 6 days, whereas in February alone the measurement was 12.40 inches on 28 days.

The rainfall at the Ordnance Survey Office, Phoenix Park, Dublin, was 4.750 inches on 24 days, the maximum in 24 hours being .880 inch on the 1st. The total amount of sunshine was 19.7 hours, the largest daily amount was 3.2 hours on the 14th. The thermometer fell to 25.9° in the screen on the early morning of the 28th.

#### RAINFALL IN 1910.

*At 40 Fitzwilliam Square, West, Dublin.*

*Rain Gauge:—Diameter of Funnel, 8 in. Height of top—Above ground, 1 ft. 4 in.; above sea level, 50 ft.*

Month	Total Depth	Greatest Fall in 24 Hours		Number of Days on which .01 or more was recorded
	Inches	Inches	Date	
January,	2.993	1.310	27th	17
February,	3.758	.810	18th	24
March,	.923	.400	1st	11
April,	2.197	.480	19th	19
May,	2.550	.368	18th	21
June,	6.211	1.259	5th	19
July,	2.400	.524	5th	16
August,	3.350	1.102	1st	22
September,	.726	.177	10th	10
October,	2.222	1.083	2nd	18
November,	2.544	.582	22nd	17
December,	5.565	.773	1st	25
Total	35.439	1.310	Jan. 27th	219

The rainfall was 35.439 inches, or 7.439 inches more than the average annual measurement of the thirty-five years, 1871-1905, inclusive—viz., 28.000 inches.

It is to be remembered that the rainfall in 1887 was very exceptionally small—16.601 inches. In 1870 only 20.859 inches

fell; in 1884 the measurement was 20.467 inches; in 1883 it was 20.493 inches.

The scanty rainfall in 1887 was in marked contrast to the abundant downpour in 1886, when 32.966 inches—or as nearly as possible double the fall of 1887—fell on 220 days. In 1900 the rainfall was 34.338 inches, or 6.338 inches in excess of the average for the thirty-five years, 1871–1905. Only once since these records commenced has the rainfall in Dublin exceeded that of 1910—namely, in 1872, when 35.566 inches fell on 238 days. In 1880 34.512 inches were measured on, however, only 188 days. In 1909 the rainfall was 26.939 inches on 193 days.

In 1910 there were 219 “rain-days” or days upon which not less than .005 inch of rain (five-thousandths of an inch) was measured. This was 21 over the average number of rain-days, which was 198 in the thirty-five years, 1871–1905, inclusive. In 1868 and 1887—the warm, dry years of recent times—the rain-days were only 160, and in 1870 they were only 145.

On four occasions in 1910 did one inch of rain fall on a given day in Dublin—viz., January 27th, 1.310 inches, June 5th, 1.259 inches, August 1st, 1.102 inches, and October 2nd, 1.083 inches. In 1901, the rainfall only once exceeded one inch, but on that occasion (November 11th) the measurement was 2.037 inches. In 1902, 1.342 inches fell on July 25th, and 2.075 inches on September 2nd. In 1903 the maximal daily rainfall was .966 inch on September 10th. In 1904, 1.092 inches fell on May 31st, and 1.197 inches on September 12th. The excessive rainfall on August 25th, 1905, is especially noteworthy—it amounted to 3.436 inches in Dublin (Fitzwilliam Square). On no previous occasion within the past 45 years had 3 inches or upwards been measured. It was the ninth occasion only since 1865—that is, in 45 years inclusive—upon which 2 inches have been measured in Dublin at 9 a.m. as the product of the preceding 24 hours’ precipitation. The previous excessive falls were—August 13th, 1874 (2.482 inches); October 27th, 1880 (2.736 inches); May 28th, 1892 (2.056 inches); July 24th, 1896 (2.020 inches); August 5th, 1899 (2.227 inches); August 2nd, 1900 (2.135 inches); November 11th, 1910 (2.037 inches); and September 2nd, 1902 (2.075 inches).

Included in the 219 rain-days in 1910 are 12 on which snow or sleet fell, and 27 on which there was hail. In January hail was observed on 4 days, in February on 7 days, in April on 6 days, in May on 4 days, in both June and July on 1 day, in October on

1 day, in November on 2 days, and in December on 1 day. Snow or sleet fell on 7 days in January, 4 days in February, and 1 day in April. Thunderstorms occurred twice in February, once in May, July, August and October, and seven times in June. Thunder was heard without visible lightning once in February and once in April. Lightning was seen twice in April and once in November.

The rainfall in the first six months of 1910 was 18.632 inches on 111 days. In the second six months it was 16.807 inches on 108 days.

The rainfall was distributed quarterly as follows: 7.674 inches fell on 52 days in the first quarter, 10.958 inches on 59 days in the second, 6.476 inches on 48 days in the third, 10.331 inches on 60 days in the fourth quarter.

More or less fog prevailed on 25 occasions—3 in January, 1 in February, 3 in March, 3 in April, 2 in May, 1 in June and July, 2 in August, 4 in October, 3 in November, and 3 in December. High winds amounted to gales (force 8 or upwards, according to the Beaufort scale) on 23 occasions—4 in January, 7 in February, 1 in March, 1 in April, 2 in August, 2 in October, 3 in November, and 3 in December.

Solar halos were seen on 30 occasions, a lunar halo on 12 nights, a lunar corona on 10 nights. Aurora borealis was seen twice in January, once in April, September, November and December, and three times in October.

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#### THE ROYAL SANITARY INSTITUTE.

HIS EXCELLENCY THE EARL OF ABERDEEN, K.T., has consented to act as Patron of the Twenty-sixth Annual Congress of the Royal Sanitary Institute, to be held at Belfast from July 24th to July 29th, 1911. His Majesty the King is Patron of the Institute. The Right Hon. Lord Dunleath, D.L., J.P., has consented to act as President of the Congress. A public meeting to inaugurate arrangements for the meeting was held at the City Hall, Belfast, on Tuesday, January 31st. Communications relative to the Institute and the Congress should be addressed to E. White Wallis, F.S.S., Secretary and Director, The Royal Sanitary Institute, 90 Buckingham Palace Road, London, S.W.

MONTH	Abs. Max.	Date	Abs. Min.	Date	Mean Daily Max.	Mean Daily Min.	Rainfall	Rain Days	Mean Height of Barometer	Highest Pressure	Date	Lowest Pressure	Date	Prevailing Winds
January	56.4	2nd	24.1	27th	45.6	36.2	2.993	17	29.770	30.469	6th	28.734	28th	W., S.W.
February	55.4	5th	32.7	1st	47.7	37.3	3.758	24	29.471	30.293	9th	28.237	20th	W., S.W.
March	55.2	20th	33.9	13 & 29	50.3	39.2	.923	11	30.106	30.594	23rd	29.320	9th	W., S.S.E.
April	64.0	18th	32.0	1st	52.3	39.5	2.197	19	29.828	30.505	1st	28.939	13th	N.W., N., W.
May	69.2	22nd	35.0	9th	58.0	45.6	2.550	21	29.913	30.443	1st	29.230	31st	W., N.W., N.E.
June	73.6	20th	42.9	1st	63.4	51.8	6.211	19	29.881	30.327	15th	29.446	27th	N.W., E.N.E.
July	72.2	27th	47.1	8th	64.5	52.5	2.400	16	29.864	30.190	13th	29.350	25th	N.W., S.W., N.E.
August	69.5	12th	49.1	22nd	64.5	53.7	3.350	22	29.796	30.292	31st	29.299	26th	W., E.S.E.
September	68.1	27th	41.8	20th	61.0	50.5	.726	10	30.265	30.522	17th	29.707	26th	N., N.W., N.E.
October	63.4	1st	37.9	12th	56.2	47.1	2.222	18	30.023	30.578	5th	29.200	31st	N.W., W.
November	56.3	1st	28.0	30th	45.8	35.8	2.544	17	29.644	30.281	19th	28.608	7th	N.W., W.
December	55.4	23rd	30.2	28th	48.1	40.8	5.565	25	29.595	30.437	30th	28.570	10th	W., S.W.
Extremes, Totals, and Means	73.6	June 20th	24.1	Jan. 27th	54.8	44.2	35.439	Days 219	29.846	30.594	March 23rd	28.237	Feb. 20th	W., N.W.
49.5°														

JOHN WILLIAM MOORE, M.A., M.D., D.P.H., Dubl.; D.Sc. Oxon.; F.R.C.P.I.;  
F. R. Met. Soc.

## NEW PREPARATIONS AND SCIENTIFIC INVENTIONS.

### *"Tabloid" Chemicals for Colour Photography.*

THE production of photographs in natural colours apart from its artistic interest is a valuable addition to the weapons of the scientist, and will doubtless become increasingly the recognised method of recording observations of pathological conditions wherever the element of colour is of importance. For instance, photographs of skin diseases, histological specimens and examples of abnormal growths, gain much in clearness and in the amount of information conveyed when faithfully reproduced in colour. Anything which serves to simplify the method is therefore of importance. The chemical processes involved in the production of such photographs, for reversing the image and for intensifying the colours, have now been conveniently provided for in a set of three "Tabloid" products which enable the amateur to experiment with all the brands of colour plates now on the market, with the minimum expenditure of time and trouble. The whole process of development, reversal, re-development and intensification can be carried out with solutions of "Tabloid" "Rytol," "Tabloid" Reversing Compound, and "Tabloid" Colour Plate Intensifier, introduced by Messrs. Burroughs Wellcome & Co., of London. By following the instructions given successful results in natural colour can be obtained with the Autochrome, Thames, Omnicolore, and Dufay plates.

### *Albulactin.*

SEBELIEN has shown that the chief difference between human milk and cow's milk consists in their different quantities of milk-albumin, of which *human milk contains three times as much as cow's milk*. Albulactin, added to prepared cow's milk, removes this deficiency by affording the right proportion of milk-albumin, thus making its composition identical with that of mother's milk. Albulactin, in fact, is simply milk-albumin as it exists in the natural milk, chemically pure and soluble in water. The addition of albulactin renders the curd soft and uniform; unlike the thick and dense curd of cow's milk, it puts no strain on the infant's digestion, but is absorbed into the tissues with the same ease and rapidity as the curd of human milk. Albulactin is manufactured by the proprietors of Sanatogen, Messrs. A. Wulff & Co., 12 Chenies Street, London, W.C.



DR. T. G. MOORHEAD.—“Myasthenia Gravis.”



Note the bilateral ptosis, the drooping of the lower lip and of the lower jaw.

# THE DUBLIN JOURNAL OF MEDICAL SCIENCE.

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MARCH, 1, 1911.

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## PART I.

### ORIGINAL COMMUNICATIONS.

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ART. VI.—*Notes on a Case of Myasthenia Gravis.*<sup>a</sup> By  
T. GILLMAN MOORHEAD, M.D., F.R.C.P.I. D.P.H.;  
Physician to the Royal City of Dublin Hospital. (Illus.)

A CASE of the obscure and rather unusual disease, Myasthenia Gravis, in which a fatal result occurred, and in which a complete *post-mortem* examination was obtained, having recently been under my observation, I have thought it might be of interest to bring before you the notes of the case, although unfortunately it throws no fresh light on the aetiology or treatment of the disease.

Although an isolated case of the disease was recorded as long ago as 1685 by Willis, it was not until nearly two centuries later, in 1878, that Erb drew attention to its main features as constituting a distinct symptom group. Wilks, in the previous year, had reported a case of apparent bulbar paralysis without discoverable lesion in the medulla, which was undoubtedly a case of true myasthenia, but neither his paper nor that of Erb

<sup>a</sup>Read before the Section of Medicine of the Royal Academy of Medicine in Ireland on Friday, February 10, 1911.

attracted much attention in this country until an elaborate monograph on the subject was published by Campbell and Bramwell in 1900. Since then numerous cases have been observed in all parts of the world, and in 1907 Palmer was able to collect the records of 124 cases which had been published in the interval between that date and the appearance of Campbell and Bramwell's paper. Since 1907 many other cases have been reported, but with the exception of one or two scattered observations, very little additional information concerning the disease in any of its aspects has been gained.

The essential symptoms of myasthenia gravis consist of paralysis of the voluntary muscles, more especially those supplied by the cranial nerves, varying in intensity and persistence, but usually more marked after muscular effort, and accompanied by a peculiar myasthenic reaction when the muscles are stimulated by the faradic current. Amongst the most common paralyses are those of the ocular muscles, including the orbicularis palpebrarum and the levator of the upper eyelid, the lip muscles, those of the tongue, and those of the neck; but in severe cases, amongst which must be grouped the case which I am about to describe, almost all the muscles of the body may be involved. The paralysis almost invariably tends to increase when the affected muscles are used, so that, for example, you may find that at the beginning of a conversation the lip and tongue muscles may be used fairly well, but after a few minutes they become weakened, and soon may become so completely paralysed as to be hardly capable of being made to contract at all. The appearance presented by the patient is strongly suggestive of the existence of some lesion of the nervous system, but up to the present, in spite of numerous careful examinations, none but the most insignificant changes in the nervous system have been discovered, and even these infrequently, so that the description originally applied by Wilks still holds good. Some few pathological changes in the muscles and viscera have of late years been described, notably by

Weigert and Buzzard, to which I will refer after reading the notes of my case.

The patient, a married woman, aged twenty-five, came to see me first on September 9, 1910, complaining of nervousness and menorrhagia. She had just previously been examined by a gynæcologist who sent me word that the pelvic organs were normal.

*Previous history.*—With the exception of the present sickness the patient stated that she had never been ill before. She had been trained as a nurse in a New York hospital, and had got married in 1907. She had no children, and was deserted by her husband about a year after marriage, and some months after the development of the first symptoms of her present illness.

*Family history* of no importance.

*History of present illness.*—About March, 1908, the first symptoms were noticed. The patient found that her legs felt weak after slight exertion, and once or twice she fell in the street. The weakness later spread to the arms, neck, and jaw, and some difficulty in speaking was felt. All the symptoms rapidly increased during 1908, but during the last eighteen months remained stationary. For six weeks prior to my seeing her she was treated in a hospital for hysteria.

*Condition on examination.*—The most striking feature in examining the patient was her facial appearance, which is well shown in the accompanying illustration. There was well-marked bilateral ptosis, the lower lip drooped from the teeth, and the lower jaw hung down. The patient was quite unable to wrinkle her forehead. When asked to close her eyes one or two ineffectual contractions of the orbicularis palpebrarum were made, and then the muscle refused to contract altogether. Similarly the lips could be approximated two or three times, but could never be kept in apposition, and fatigue of the muscles soon became complete. In trying to speak the lower jaw moved a little, but after a few words it became necessary to support the jaw with the hand. There was almost complete external ophthalmoplegia, the only possible ocular movement being one in a downward and inward direction, but even this was very slight. The pupils re-acted normally but slowly; there was no nystagmus and no retinal change, but diplopia was troublesome.

The neck muscles were very weak, so that on attempting to move the head backwards it fell completely back as soon as a position beyond the vertical was reached. A similar but less marked loss of power was present in the muscles that move the head forwards. The muscles of the trunk were also weak, causing difficulty in sitting up or turning in bed.

*Arm muscles.*—The deltoid on each side was weak and atrophied, as were also the trapezii: the flexors and extensors of the elbow joint were fairly normal; the muscles of the fore-arm were all weak, and the power of grasp was very slight and could not be maintained. A slight supinator and triceps reflex was obtained on each side.

*Leg muscles.*—There was sufficient general weakness of the leg muscles to prevent the patient from standing without support, but in bed the most marked weakness noted was in the flexors of the hip joint. The gluteals also were weak and much atrophied. There was moderate power of flexion and extension at the ankle and knee joints. The patellar and ankle reflexes were brisk on both sides, but neither rectus nor ankle clonus was present. The plantar reflex was normal. The power of the sphincters was considerably impaired, and on some days there was complete loss of control over these muscles.

*Speech.*—This was much impaired, apparently due to the weakness of the face and jaw muscles and of the tongue. The tongue was tremulous, and could be protruded only with difficulty; it was much atrophied. There was no paralysis of the soft palate or vocal cords. At times difficulty in swallowing was experienced.

No sensory disturbance of any kind was noted, and with the exception of slight persistent menorrhagia no visceral abnormality was found. The blood pressure was 120 m.m. Hg; the urine was normal, except for the presence of a small trace of albumen. The blood count showed 3,700,000 red cells, 70 per cent. Hb, and white cells 7,200, with 76.5 neutrophils and 23.5 lymphocytes. Neither hyaline nor eosinophile cells were found in any of the three counts that were made.

*Electrical reactions.*—The face and arm muscles were tested with the galvanic current and contracted normally, the kathodal closure contraction being stronger than the

anodal closure contraction. A distinct myasthenic re-action was obtained with the faradic current in the face muscles of the right side, and in the flexor sublimis digitorum. In the latter muscle failure of response occurred after 25 separate stimuli with the faradic current; after an interval of a few minutes the muscle again responded, but was again rapidly fatigued.

*Progress of case.*—The patient remained in much the same condition as I have described for ten days, occasional slight remissions in the degree of paralysis being observed. On the eleventh day she was attacked with sudden dyspnœa and cardiac failure, became quite unable to speak or swallow, and died in a couple of hours.

Comment on the symptoms exhibited by this patient is unnecessary, as in almost every detail the case was typical. It may, however, be worth while emphasising the fact that there was marked atrophy of the gluteal muscles, the deltoids, and of the tongue, inasmuch as absence of atrophy was at one time regarded as an important diagnostic sign. The mode of death with dyspnœa and cardiac failure is that most often met with. Nothing need be said regarding differential diagnosis, as to one familiar with the disease mistake would be almost an impossibility. Hysteria is the condition with which myasthenia gravis has most often been counfounded, and, as already stated, the mistake had been made in the present case previous to my seeing her. The well-defined ophthalmoplegia should, however, be enough to make the distinction, although it may be admitted that many of the symptoms are suggestive of a neurosis.

*Pathology.*—Morbid anatomists in seeking for a cause for the striking phenomena exhibited by a case of myasthenia gravis, or for the cause of death have hitherto been as a rule disappointed by the paucity of pathological changes in the body. The nervous system has been diligently investigated, but no striking or constant changes have been found either in the cerebral cortex, the cranial nerve nuclei, the spinal cord, or the peripheral

nerves. The first pathological finding of importance was made by Weigert in 1901, who recorded a case of myasthenia in which he had found a sarcoma of the thymus gland, and since then about a dozen other cases have been reported in which thymic abnormalities were present. In some cases there has been simple hypertrophy of the gland, and in others malignant tumours. Such changes have, however, been found in about 20 per cent. of investigated cases only, and cannot be regarded as a constant lesion. More constant are slight changes in the muscles. In addition to the sarcoma of the thymus Weigert found in his case small areas of cellular infiltration in the perimysium and between the fibres of the muscles which he examined, and to these accumulations Buzzard, who regards them as constant features of the disease, subsequently gave the name of lymphorrhages. They consist of groups of lymphocyte-like cells scattered here and there between the muscle fibres, and occasionally similar cell groups are found in the viscera. In addition to the lymphorrhages proliferation of the sarcolemmal nuclei and simple atrophy of some of the muscle fibres may also be present. Various isolated abnormalities of the viscera have been reported, but no constant change in any of them has been found.

The findings in the present case were as follows:—The thymus gland was persistent, and possessed two well-defined lobes extending down over the pericardium; microscopically it was normal, but, as in other cases, contained no eosinophile cells. The thyroid gland was somewhat enlarged, and microscopically was more cellular than normal. The kidney was slightly congested and showed parenchymatous changes; both ovaries were enlarged and cystic. The other viscera, including the red marrow and the pituitary body, were normal microscopically and macroscopically. Dr. Wigham kindly examined the spinal cord, the medulla, the pons, the central nuclei, and the cortex in the Rolandic region of the brain and reported them as normal. Macroscopically the brain and

spinal cord were quite normal. As regards the muscles, sections were made from the levator palpebrae superioris, the masseter and the pectoralis major, and in all I examined over 400 sections. The masseter and pectoralis major appeared to be normal, with the exception of one doubtful lymphorrhage in the pectoralis. The collection of cells, however, in this particular instance was found not between the muscle fibres but in the interstitial connective tissue. In the levator palpebrae muscle some atrophy of muscle fibres was noted, marked proliferation of sarcolemmal nuclei was present, and in many of the sections scattered uninuclear cells with rounded nuclei were found between the muscle fibres. Nothing at all approaching in appearance, however, to the lymphorrhages as figured by Buzzard were found, and after a most careful search in three of the muscles of a very typical case I feel inclined to throw doubt on the universal presence of lymphorrhages in the muscles of myasthenic cases. I submitted some of my sections to Dr. Farquhar Buzzard, who very kindly examined them, and agreed that no typical lymphorrhages were to be seen, and on his advice I subsequently had serial sections cut from the remaining available muscle tissue with the results I have stated.

*Ætiology and Pathogenesis.*—Practically nothing is known regarding the causation or pathogenesis of the disease. Statistical collections of cases show that women are rather more liable to be attacked than men, and that most cases occur between twenty and forty years of age. In many, emotional disturbance, overwork, or infectious diseases are mentioned as preceding events, but as similar events are not uncommon in the lives of a majority of the race their further consideration here is, to say the least, uncalled for. A distinct history of menstrual irregularities is frequently to be obtained, as in the case recorded, but here again the trouble is so common as to be probably void of ætiological significance in connection with myasthenia; nor can one place much importance on observed variations in the disease during the course of pregnancy,

inasmuch as the physiological changes during pregnancy are well known to exert a modifying influence on any concomitant disease.

More interest attaches to the observed changes in the thymus gland and muscles. The whole aspect of the disease recalls the symptoms met with in Addison's disease or in acidosis, and in consequence it is often assumed that the cause is to be found either in the presence of some unknown toxin in the body or in the absence of some internal secretion, possibly that of the thymus gland. So little, however, is known concerning the physiological functions of the thymus, and so infrequent are obvious lesions of it present in myasthenia, that for the present it seems unprofitable to further discuss the theory, nor does the mental evolvment of a hypothetical toxin solve the difficulty. It is possible that wider researches in the domain of bio-chemistry and internal secretions will throw light on the problem, the solution of which is all important, as hitherto treatment has for the most part been more harmless than curative, and it is unlikely that any advance in therapeutics will be made on empirical lines.

The constant presence of changes in the muscles seems only what one would expect from the clinical symptoms, and from analogy with other diseases might be regarded rather as secondary than primary phenomena. Those who regard the lymphorrhages as all-important pathological concomitants have thought that their existence might mechanically interfere with the lymphatic drain of the metabolic products resulting from muscular fatigue, thereby establishing a condition of muscular toxæmia. Such a theory, however, can only be deemed fantastic, having regard to the number of available lymph paths and the scarcity of the lymphorrhages in a majority of cases.

Of the numerous other suggestions I will refer only to two. In exophthalmic goitre a persistent thymus is often found in association with the enlarged thyroid

and nervous symptoms predominate. So also in myasthenia unusual conditions in both thyroid and thymus may be found. A consideration of the facts appears to me to point to the conclusion that in the future physiologists and pathologists should seek for an explanation of both normal and abnormal metabolic changes more in a study of the inter-relationships of organs and of the effects which the products of one produce upon the functions of another than in the study of the individual organs as isolated structures. The changes in the thyroid have produced the unproductive and unsatisfactory theory that some change in its secretion may account for the symptoms of myasthenia. To my mind they should suggest rather a series of investigations into the effect produced by the thyroid and other secretions on all the other glands of the body, in the hope that during such a course of investigations collateral light might be thrown on the aetiology of many obscure diseases.

Lastly, Chvostek, contrasting the symptoms of tetany with those of myasthenia, and assuming that the former symptoms are caused by a defective supply of the secretion of the parathyroid bodies, has lately advanced the further assumption that an over-supply of the same secretion is the cause of the latter symptoms. Such ill-based theorising deserves scant attention, but that it gives the opportunity of a protest against the prevailing tendency to lay the onus of producing a group of serious but aetiologicaly unsolved diseases on the probably harmless parathyroid glands. In making these few remarks my criticism has, I fear, been of the destructive type, but to my mind nothing is gained by wild theorising on insufficient ground, and sooner than accept an unproved and unlikely theory I prefer to frankly admit our aetiological ignorance.

ART. VII.—*Epidemic Pneumonia*.<sup>a</sup> By ALLMAN J. POWELL, M.D. Univ. Dubl. ; Resident Medical Officer, General Hospital, Wolverhampton.

WHEN one considers the ætiology of acute croupous pneumonia one cannot help being struck with the rarity of infection. All clinical observations and bacteriological findings belong to the type of disease which is most prone to be transmitted from one sufferer to another. The short incubation, high pyrexia, rapid pulse and respirations, the insomnia, restlessness, and frequently delirium of the patient all show that he is in the grip of a disease caused by a virulent and rapidly multiplying organism. In a few hours a man in the best of health—for it is usually the strongest that are attacked—exhibits all signs of the disease at its height, affecting all the organs of the body. Above and beyond all these signs, which liken it to its more infectious neighbours of sudden onset, such as influenza, the exanthemata, and the like, the special micro-organism which causes it can be demonstrated in every case. I refer to the diplococcus of Fränkel. When we consider that this organism is found in countless numbers in the sputum, and that in the case of poorer patients, who are confined in ill-ventilated and ill-lighted rooms of small dimensions, the sputum frequently finds a resting-place on the floor, and is there converted into a dust in which the organisms can retain their vitality for as long as one hundred and forty days, it seems extraordinary that so few cases of direct infection are seen, especially as in the case of pneumonia no stringent precautions in the way of isolation are observed as a rule. Even individuals who are more careful with regard to the disposal of their sputum are very liable to disperse it unconsciously, for it sometimes happens that the violent coughing converts some of the expectoration into a fine spray which can float in the air for as long as an hour,

\* A Thesis read for the Degree of Doctor of Medicine in the University of Dublin, December, 1910.

and should prove a very lively source of infection. However, many occasions are on record when the disease has assumed an infectious form, and when such has been the case the infection has been as a rule very acute, the malady being transmitted with the greatest rapidity and readiness.

It has been thought that the Plague of Athens, which killed one-quarter of the inhabitants, and the Black Death in the middle of the fourteenth century were in reality outbreaks of this kind, some of the symptoms pointing to an infectious pneumonia of a malignant type. But this, of course, is mere conjecture. To come to more modern times, several of these epidemics have been noted. The most extensive and best known occurred at Middlesbrough, and has been exhaustively described. In 1888 this town was attacked by an epidemic of virulent pneumonia. The most characteristic features were, briefly :—The malignancy of the disease, pains in the joints, and hæmorrhages. Another feature of note was that the constitutional disturbances were out of all proportion to the local trouble. The mortality in this outbreak was 21 per cent. Others also of the recorded outbreaks have been characterised by particular symptoms or by a peculiar selection of their victims. Thus in an outbreak in Alaska in 1881 only natives were attacked with one exception. Another outbreak has been described in which the disease was limited to children under five years of age. As might be expected, there are also records of outbreaks in crowded buildings. A case of pneumonia has been described which infected two other patients in a hospital ward. There has also been described an outbreak of large dimensions in a prison. These are some of the more striking recorded outbreaks. A point of considerable interest, to the medical mind at least, is that very rarely were any of the doctors or nurses who attended the patients attacked.

As no outbreak of this infectious type of pneumonia has been recorded for some time I venture to report a series of cases similar in many respects, but if anything

more virulent and infectious. Another point which makes the outbreak somewhat out of the common is that a doctor was the second victim.

This epidemic occurred in April and May of the year 1909 in the village of Penn, near Wolverhampton, Staffordshire, England. The patients came from the smaller cottagers in the village with the exception of the first case, which came from about one mile outside the village. The number of recorded cases was nine. The number of deaths was seven. The cases can be divided into two series, in each of which a clear history of direct infection from case to case was manifest. In the first group there were four cases, and in the second three. The remaining two occurred sporadically, but were both attended by the district nurse who had attended some of the other cases. Beyond these significant facts no clearer history of infection could be obtained in the last two cases.

The first case was that of a carter, a middle-aged man. He had been out of sorts for a day or two, and then was seized with a violent pain in his side with cough. He was seen by Dr. M., who diagnosticated pneumonia. He went through the stages of an acute pneumonia, and died on the sixth day. His history is not very complete, as on the day after Dr. M. saw him the doctor himself fell ill. The next day he was profoundly collapsed, with great mental depression, pain in the side, cough, cyanosis, rapid pulse and respirations, and high temperature, and all the physical signs of consolidation at the right base. The condition of prostration and mental depression continued. He became rapidly worse in every way, and on the fifth day he became delirious and rapidly semi-unconscious, and died on the sixth day. An interesting point in his treatment was that the delirium and restlessness could be controlled only by the continuous administration of oxygen, even a few minutes' cessation of which was accompanied by a return of the restlessness.

Mr. B., the employer of the carter, the first case mentioned, was the next victim. He had been two or three

times to visit the man, and the day after the last visit he, too, fell ill. He had a typical pneumonia of a severe type, with delirium and cyanosis, and died also on the sixth day.

He evidently transferred the infection to his wife, who was admitted to the General Hospital, Wolverhampton, on April 27th.

She had been ill for one day with pain in the left side of the chest and difficulty in breathing. She was flushed and dyspnoëic, with a pulse of 118, respirations 40 and temperature  $103^{\circ}$ . There were signs of partial consolidation at the right base, but her pain was almost wholly on the left side, and extended to the abdomen and right hip. The heart was normal. Labial herpes developed two days later. The right lung showed signs of resolution in three days and there was a fall of temperature to  $99.8^{\circ}$ , and respirations to 36 on the fifth day, but the pulse-rate kept at 120. On the sixth day the temperature rose to  $103.2^{\circ}$ , and there were signs of consolidation on the left side opposite the spine of the scapula. She suffered from sleeplessness and tympanites, and died on the ninth day.

This is the last of the first series of cases, all of whom, as will be seen, died. In them there is a clear history of direct infection.

The next series were all members of one family. These people lived within about one hundred yards of the house inhabited by the last two cases mentioned, but, as far as can be ascertained, had no direct communication with them. The first was a woman, aged thirty-three. She had been in good health until one week before her admission to hospital. For the first four days of this period she had not felt well, but had no definite symptoms. On the fifth day, two days before admission, she collapsed, and had to take to bed. Her condition then was one of extreme prostration, with pain in the left side of the chest and abdomen, and a short, hacking cough without expectoration. Her affection on admission to hospital

was typical acute croupous pneumonia. Foul tongue; herpes labialis; pulse 120; temperature  $104.4^{\circ}$ ; respirations 40. There were signs of incomplete consolidation at the left base posteriorly. The crisis came on the next day, and was followed on the day after by a rebound of temperature to  $101.8^{\circ}$ , with pulse of 96, and respirations of 26. During these two days her pulse was regular, and on the whole of good volume and tension. She appeared to be making a good recovery until the night of May 15th, ten days after her admission. During this period, after her crisis, she had invariably slept well, and on this particular night had gone to sleep at the usual time. After about one hour's quiet sleep her breathing suddenly became laboured, and she was found to be pale, collapsed, and pulseless. In spite of cardiac stimulants she died in about fifteen minutes, remaining conscious and oppressed by a sense of her approaching death till a few seconds before the end. She had been taking strychnin since the day of her admission, and had not been out of bed. At the *post-mortem* examination it was found that the lungs had completely resolved, and that the other organs were normal with the exception of the heart, the right side of which was greatly dilated. The heart muscle appeared healthy to the naked eye. There were no valvular lesions nor any *ante-mortem* clotting.

The next case was a boy, aged fourteen years, the son of this woman. The onset in this case was very rapid. He appeared to be in excellent health until three days before his admission to hospital—in other words, two days after his mother fell ill. He was found in an outhouse in a state of great collapse, blue, cold, and dyspnoic. He had had sudden pain in the right side of his chest, and had vomited once, and had had a rigor. His case was diagnosticated as "influenza," and he was kept in bed at home three days, at the end of which time he was found to be suffering from pneumonia. He was thereupon sent to hospital. On examination his pulse was 108, full and soft; temperature  $102.6^{\circ}$ , respirations 42.

He had herpes at the angles of the mouth. There were signs of consolidation of a small area of the right lung at the lower part of the anterior surface. He "crisised" the following day and made an uninterrupted recovery with the exception of slight cardiac irregularity two weeks later. This cardiac irregularity is of great interest when one remembers the sudden fatal syncope which befel his mother within three days of the same date.

The final case in this family occurred in a boy of six years of age. He also had typical pneumonia of the right lower lobe with labial herpes, and pulse of 138, respirations of 48, and temperature of  $102^{\circ}$ . His crisis came on the day of admission and had an uneventful recovery. His case, on the whole, was a mild one.

No further cases of direct infection can be traced, but one case of indirect infection is recorded. This case was a woman who was confined on May 5th. She was attended by the district nurse who attended some of the other cases mentioned. The nurse enjoyed perfect health throughout the epidemic, and this was the only case out of many which she attended at the time which developed pneumonia. This woman lived within two hundred yards of the houses from which the other cases came. Seven days after her confinement, which was normal in every way, she developed sudden abdominal pain, pyrexia, and rapid breathing. The lochia were natural, and a careful examination showed that there was no sepsis in the genital tract. On the following day there were signs of definite consolidation at the left base. She became rapidly worse, and died on the following day.

The ninth case was that of a man who lived within one hundred yards of all the other cases which have been mentioned. On May 9th he was admitted to hospital suffering from a malignant form of pneumonia. He started with consolidation at the right base. Four days later he developed pneumonia at the left base. He had delirium and great cyanosis, and died twelve days later of heart failure.

These cases have been given in detail as they furnish an example of the type of disease which in brief was characterised by great cardiac depression, cyanosis and dyspnoea at the outset with but few local physical signs.

The number of cases attended by other practitioners in the immediate neighbourhood during this time was considerable, but accurate information cannot be obtained either as to their numbers or the type of the disease or the nature of the infection, so it has been thought advisable to give only those statistics which can absolutely be relied on.

As can be seen by these cases mentioned, only two recovered, both children, one aged fourteen, the other six. All the adults died, making a mortality of 77.7 per cent.

The outbreak, as can easily be imagined, caused great alarm in this little community of a few hundred souls, and many reasons were assigned as the cause of it by the people themselves. Many of these were fantastical and wild; some were more rational, but none of them, upon careful investigation, could be sustained. Amongst others, a report came into being that this was a disease which originated from horses. Probably the reason of this belief was that the first person to be attacked was a carter, who passed his time almost exclusively amongst these animals. This belief was quite unfounded, as an inquiry amongst the veterinary surgeons elicited the information that there was no known case of pneumonia amongst the horses of the countryside, and that in fact there had not been a case for a long time.

It seems that from this particular disease the horses in the vicinity had been peculiarly exempt.

That such a report should have arisen is very interesting in view of the fact that epidemics have been reported more than once which originated in horses, oxen, or sheep.

As an instance we may give the following occurrences : In 1884 an epidemic of pneumonia broke out amongst the

horses of the Westphalian Artillery at Minden. Shortly afterwards a similar outbreak occurred amongst the soldiers, and it was found that only those whose business brought them into close contact with the horses were attacked. Another instance of transmission of pneumonia from animals to human beings occurred in Paris, where an outbreak of epidemic pneumonia was started by a similar disease in parrots, if the medical reports are to be believed.

The subject of sanitation was also raised, but the report of the medical officer of health showed that the drainage was in excellent order.

To counteract the panic caused by this report the following notice was posted up in prominent positions about the village by the medical officer of health :—

“ In common with neighbouring districts and many other parts of the country, Penn has been suffering from a severe epidemic of influenza and pneumonia, the cases varying from very trifling ones to very severe. The epidemic has been aggravated by extreme variations of temperature, but has now almost disappeared.

“ The disease can only be communicated by people who are themselves suffering from it, and it has nothing whatever to do with drainage or (as has been rumoured) diseased horses.”

In investigating the matter from a scientific point of view several conditions can be found which at the least were probably of help in spreading the infection, although they can hardly be looked upon as a sufficient explanation in themselves.

To begin with, the epidemic occurred in Spring, a season which is remarkable for the amount of sporadic pneumonia which it provides. Furthermore, this was a particularly inclement spring, very wet and cold, with great changes in temperature. Too much stress, however, must not be laid upon the weather, as the effect of rain and cold on pneumonia has been much debated. It seems, on viewing the available facts by the light of

experience, that pneumonia varies inversely with the rainfall. The epidemic in Middlesbrough, which has been alluded to, was apparently put an end to by a heavy rainfall. Presumably this is due to the action of the rain in purifying the air and in allaying the dust, though it must be admitted that such an argument does not hold good for the air and dust in the interior of houses. However that may be, it seems certain that rain has some influence in checking the spread and occurrence of pneumonia.

Cold is rather a more complex subject. Pneumonia is undoubtedly more common during cold weather; but probably this is due to greater crowding in houses for warmth, and a more liberal use of the popular cold dispeller, alcohol. One fact which would make it appear that cold in itself is not provocative of pneumonia is that it has been observed that pneumonia is more common in temperate climes than further north. In fact, Laplanders, when transplanted from their country to warmer regions, are very liable to contract a fatal form of pneumonia.

The social condition of the patients is also of importance. They were all inhabitants of small houses, and came from two small streets in the village. It must be added, however, that the back premises of the houses are open, and that there are no back-to-back houses.

It is possible that to get a true solution of the matter it must be approached from a different standpoint. It seems on the face of it more reasonable to search, not for a cause for these comparatively rare outbreaks, but rather for a reason why they should not be more common. Unfortunately, this line of inquiry presents if anything even more difficulties than the former. It is hard to explain why an acute fever of sudden onset, due to a well-known micro-organism which is contained in large numbers in at least one of the excretions, should not invariably show well-marked infectiousness.

It has been found that injections of pneumococci of high virulence produce in animals a rapidly fatal fever

akin to septicæmia, while injections of less virulence produce only local lesions, such as lobar pneumonia, causing a much less fatal disease. It is possible that at one time the pneumococcus was an organism of much higher virulence than at the present day, and occasionally it may revert to the former type, producing, when it does so, the epidemic form of pneumonia, a disease which, as has been well said, might be named "pneumonic fever"—in its clinical manifestations similar to that produced in animals by injections of large quantities of virulent pneumococci.

If this supposition be true, physicians may yet see the day when a reversion to the original type may become the rule and pneumonia be classed as one of those highly infectious fevers which must be treated with all the careful isolation which to-day is meted out to the notifiable diseases.

ART. VIII.—*Congenital Fistulæ.*<sup>a</sup> By J. H. P. BORD  
BARRETT, M.B., B.Ch., B.A.O., R.U.I.; Assistant  
Surgeon, Children's Hospital, Temple Street, Dublin.

It was intended to include in this paper some reference to congenital fistulæ in the neck and to such conditions as recto-vaginal fistulæ; but I think it will be found that the paper has reached sufficient length in the discussion of—

- (1) Intestinal fistulæ of the umbilicus;
- (2) Urinary fistulæ of the umbilicus;
- (3) Paracoccygeal fistulæ; and
- (4) Fistulæ of the external ear.

These particular abnormalities alone will receive consideration. In this restriction I am influenced by the fact that congenital fistulæ of the neck, being more usually of an inoperable nature, are as frequently observed in adults as in children.

<sup>a</sup> Read before the Section of Surgery in the Royal Academy of Medicine in Ireland, on Friday, January 20, 1911. [For discussion on this paper see page 225.]

Before discussing the diagnosis and treatment of intestinal fistulæ of the umbilicus it is necessary to briefly refer to their formation.

At the beginning of embryonal life the intestine, which is being formed by the union of the endoderm with the splanchno-pleure, communicates through the umbilicus with the umbilical vesicle by means of the omphalo-mesenteric canal. At the beginning of the second month the intestine is completely closed and the mesenteric canal is represented by a stalk.

The disappearance of this connection in the third month leaves the intestine free in the abdominal cavity.

In many cases, however, this canal persists, and two conditions are possible. It may be represented by a diverticulum attached to the intestine, or it may still connect the intestine with the umbilicus. It is in this latter condition we are at present interested.

The adherence of the intestine to the umbilicus by the persistence of the omphalo-mesenteric duct may take various forms. The duct may be open in its whole length. The umbilical part may be obliterated, and so we should have a Meckel's diverticulum adherent to the umbilicus. The duct might be obliterated, except for the formation of cysts in the length of the duct or on the deep surface of the abdominal wall, communicating with the umbilicus and simulating fistulæ. The duct may be closed at its intestinal end.

The diagnosis of faecal fistulæ depends on the presence of a lumen through which a probe may be passed.

The protrusion of the mucous membrane of the small intestine causing strangulation has been recorded. The diverticulum has given rise to adenomata resembling mucous membrane in appearance and secreting clear mucus. They are, however, solid and have no lumen.

Mr. G. A. Wright gives a graphic description of the persistence of the vitelline duct:—"On examining this child there was a red fleshy prominence, then about one and a half inch long, projecting from the navel. It was

about as thick as a cedar pencil and its surface appeared to be mucous membrane except at one spot where a patch of delicate cuticle was found. The apex of the protrusion was perforated by an orifice which readily admitted an ordinary probe, and the instrument could be passed downwards in the middle line and swept round on each side for some three inches. It could only be passed upwards for about half an inch.

"A thin, watery mucus in small quantities was discharged, but no fæces or urine. Subsequently faecal matter escaped from the orifice. The protruded mass was ligatured and removed with a good result."

As the diverticulum is prolapsed a section shows the central canal lined with villi and also the remains of villi on the outer mucous membrane and tubular glands. The muscular coats are also seen.

The discharge of mucus alone may be explained by the closure of the intestinal end of the duct; and this it is, no doubt, that in many cases obstructs the passage of a probe.

I had recently under my care in the out-patient department of the Children's Hospital, Temple Street, two cases with umbilical fistulæ. In each case—one a boy of six years, the other a girl of six months—the diverticulum protruded through the umbilical cicatrix to the extent of about one inch. In both a probe could be passed through an orifice at the apex of the protrusion, which was covered with mucous membrane. They were subsequently operated on by my colleague, Mr. Staunton. The boy before the operation showed symptoms of intestinal obstruction which were possibly due to the dragging of the diverticulum upon the ileum. Both made excellent recoveries.

It is important to remember that it is by no means the rule to find faecal matter coming through the fistulæ. Cysts are rare and their diagnosis presents no difficulty. Polypi of the umbilicus are soft and pale in colour, and can so be distinguished from the adenomata with red

mucous membrane. Treatment consists in opening the abdomen and freeing the intestine. The wound is closed as in operations for umbilical hernia. It is difficult to understand how a surgeon could be satisfied with merely ligaturing the base of the protrusion.

*Urinary fistulæ* of the umbilicus are due to patency of the urachus. About the middle of intra-uterine life the urachus is generally obliterated, but in these cases it remains permeable. This condition is found in cases where the normal outlet for urine is impeded. It has been found in a girl whose urethra was occluded by a thick membrane and in a case where micturition was impeded by a sarcoma growing in the bladder of a child—a case recorded by Mr. D'Arcy Power.

The opening may be situated at the head of a tumour or appear as a fissure at the bottom of the umbilical cicatrix. The orifice may be extremely narrow, in which case the urine may exude only in drops. On the other hand, the opening may be large and the flow considerable.

The diagnosis depends on the acidity of the discharge, its ammoniacal odour, its increased flow during micturition, and a history of congenital origin.

Cure may be obtained by cauterisation of the orifice, by freshening the edges and suture, or by the more radical operation of removal of the urachus and closure of the umbilical wound as for hernia. This ensures the impossibility of any subsequent protrusion of abdominal contents.

*Paracoccygeal Fistulæ.*—This name has been given to those funnel-shaped depressions in the skin in the middle line over the sacrum and coccyx. They are not rare, and are found in children who present no other malformation. They are interesting solely from the point of view of their embryological origin and seldom call for surgical interference.

These fistulæ give rise to no trouble except in the rarer cases, when, owing to the depth of the fistulous track, and the presence of retained secretion, they become the

source of irritation or infection. They are lined with sebaceous glands and sometimes with hair, and when infected may resemble a sinus and so give rise to doubts in diagnosis. The history is, therefore, of importance.

It is seldom that these paracoccygeal fistulae reach any considerable depth, and simple depressions in the skin in the areas mentioned are more commonly found. These depressions may occur singly, but as a rule there are more than one present. Their origin is so well described in Kermisson's "Surgery of Children" that I cannot do better than quote his description in its entirety :

"At the beginning of intra-uterine life the medullary canal is prolonged to the very tip of the coccyx, and there terminates in a swelling which is attached by strong adhesions on its posterior surface to the deeper layers of the skin. Later, as the vertebral column develops very much faster than the soft parts, the cord has to occupy a higher level, but the coccygeal remains persist and attain their greatest development in the course of the fifth month.

"At this time the soft parts undergo a considerable development, the trunk, which up to this had the primitive embryonal dorsal curve, develops its secondary and permanent curves, and the coccygeal eminence, up to this prominent, is completely effaced.

"During this change, the coccygeal remains, which are inserted into the skin, oppose the movement and cause displacement of the skin, which becomes invaginated, and thus these depressions, to which we give the name of coccygeal fossæ, are probably formed."

I had recently under my care an infant with a well-marked depression over the sacrum which I regarded as a paracoccygeal fistula. This child had no other anatomical abnormalities.

*Fistulæ of External Ear.*—Fistulæ of the external ear are the result of imperfect fusion of the auricular tubercles. These anomalies are more frequently seen at the junctions of the crus helicis with the helix, of the

tragus with the crus helicis, between the helix and anti-helix, or in the lobule. They seldom call for surgical interference, except when, owing to the closure of their orifices, a cyst is formed and suppuration occurs; or they may be mistaken for sinuses leading to glands. The openings are small and the canals usually of no great depth. They are lined with a considerable number of sebaceous glands, and are, therefore, often covered with an incrustation of dried sebum.

The case which I have the opportunity of showing presents a minute fistula in the helix of the left ear. It is very small, and there is no discharge from it. It has never been the source of any trouble, and was discovered by the mother quite by accident.

The child also has a preauricular fistula on the same side which is much larger and is constantly discharging sebaceous material which becomes dried in crusts about the orifice.

A series of eminences can be recognised at the end of the first month of intra-uterine life round the hyo-mandibular cleft. They are six in number—one for the tragus, one for the anti-tragus, two for the helix, one for the anti-helix, and one for the lobule.

It can be readily understood that the incomplete fusion of these tubercles is the cause of the occurrence of fistulae between the parts they represent in life.

The fusion of several units in this region of great complexity is, in the words of Mr. Howell Evans, "of great interest in the study of our evolution from aquatic ancestors."

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ART. IX.—*Influenza*.<sup>a</sup> By JAMES F. CLARKE, M.D.  
Univ. Dubl.

THE recurring epidemics of influenza every winter tend to keep up a certain amount of interest in this disease and

<sup>a</sup> A Thesis read for the Degree of Doctor of Medicine in the University of Dublin, December, 1910.

leave some room for investigation as regards the bacteriological conditions under which they occur. Influenza very soon comes under the notice of every man entering practice, and due care must always be given to its consideration, as it is a great mistake to regard the disease too lightly or to give a careless prognosis.

When we look over the history of the disease we find that far back into the Middle Ages are accounts of epidemics appearing at varying intervals, and as early as the year 1173, in the chronicles of Melrose Abbey, there is recorded an epidemic closely resembling influenza as we know it. These epidemics occurred at longer or shorter intervals, and after an outbreak the disease always assumed an endemic character, gradually becoming less severe and finally passing away till it reappeared again forty or fifty years later. In 1511 Erasmus laid blame on the insanitary conditions then existing, and suggested that the clay and rushes which covered the streets should be changed oftener than once in every twenty years, and also that the people should leave their windows open and admit the fresh air. In the fifteenth and sixteenth centuries several writers drew attention to the evil consequences which attended the treatment of bleeding, as they said "few died except those who were bled"; but in spite of this in 1729 bleeding was still considered the treatment in England. From 1847 there was a period of forty years' quiescence, and the disease was almost forgotten till in 1889 it broke out in Central Asia and, travelling *via* Siberia and Russia, it invaded Europe, and then spread the following year all over the world. Since then it has remained endemic, manifesting itself chiefly during the winter months; but statistics and certain bacterial changes, which I will mention later, show that the virulence is abating, and give us leave to look forward to its disappearance.

It is an interesting point to note that the death-rate from influenza per million for 1887-8-9 respectively was 3, 3, and 2, whereas in 1890 it leaped to 157, the follow-

ing years rising to 574 and 533, thus showing plainly the epidemic nature of the disease. Since then the general tendency has been towards a decrease, with the exception of ten years ago, when it mounted to 504, only, however, to fall next year to 174, and to keep getting progressively lower since. This outbreak in 1890 was so sudden and severe that many people considered it a new disease, and it received the name of Russian influenza, which name is still used by some to distinguish the severe cases which one sometimes meets with. It was during this epidemic that the question first arose about infection, and it was conclusively shown that the disease did not travel faster than human communications and that it followed these lines.

This outbreak, occurring at the time which it did, claimed a great deal of attention from bacteriologists, and in 1892 Pfeiffer announced the discovery of an organism which appeared to be the cause. The *Bacillus influenzae*, or Pfeiffer's bacillus, as it is usually called, is small,  $.5 \mu$  in length, and stains deeply at the ends, leaving a clear space in the centre; it is a strict aërobe and grows best at the body temperature on a medium containing hæmoglobin, but the growths are feeble and require great care and frequent transplantation to keep them alive. This bacillus shows very definite symbiotic relations to other organisms, particularly to diphtheria bacilli, staphylococci, and the *Bacillus prodigiosus*. This last Luerissen says is the best nurse for the influenza bacillus, and that it still exhibits this property even after the culture itself has been killed by heat. On the evidence which we have at present Pfeiffer's bacillus cannot be taken as the pure determining cause, for other organisms have been found which resemble it in all its characteristics of growth, staining, and symbiotic relations, but which do not cause influenza. Among these are the *Bacillus pertussis* found in the sputum of patients with whooping cough, the organism of epidemic conjunctivitis, and the bacillus described by Müller which is found in trachoma. The question of the

actual identity of these organisms is difficult, but they are supposed to be all modifications of the same species, and thus we have some ground on which to explain the presence of bacilli which are potentially those of influenza during a non-epidemic period. Another fact is the occurrence of typical clinical influenza with the absence of Pfeiffer's bacillus. Dunn and Gordon published the report of an epidemic in which it was absent but the *Micrococcus catarrhalis* was frequently present. On the whole it is rare to find Pfeiffer's bacillus at present, though earlier in the epidemic it was common, and was usually obtainable in pure cultures; later on it was found in conjunction with the *Micrococcus catarrhalis*, both organisms often occurring in the same patient, or one patient would have one, the other another. Nowadays the latter organism is usually found alone, and following it in frequency are pneumococci, streptococci, and pseudodiphtheria bacilli. These bacterial changes, considered in conjunction with the statistics, I think would justify the question as to what the cause of the condition really is. We must either assume that it is a specific disease due solely to Pfeiffer's bacillus, and group those cases which are clinically identical, but in which this bacillus is absent, as pseudo-influenza, or consider it not as a pathological entity, but as a group of diverse diseases due to various organisms. As there is no vaccine or antitoxin prepared from Pfeiffer's bacillus we cannot say how the various causative bacteria would react to serum-therapy, thus giving us some indication of their relations: also in the absence of this treatment an accurate bacterial diagnosis does not interest the practitioner. Whatever the causative agent the mode of infection is through one of the mucous membranes, practically always the respiratory mucosa, but rare cases have been recorded in which the conjunctiva was primarily affected, and there is at least one case on record of infection through the urethra. Pfeiffer's bacillus has been obtained from the blood, the cases usually showing signs of general toxæmia or severe

nervous symptoms. Such complications as pneumonia may be caused by this organism alone, but inflammatory sequelæ, as otitis media, are due to a secondary infection.

After an incubation period of two or three days, in which the patient feels out of sorts, there is a more or less definite invasion. He experiences a sensation of general depression and discomfort, he feels giddy, his head aches, there are pains in the eyeballs or behind the eyes, rheumatoid pains in the body, particularly in the nape of the neck and lumbar region, he feels cold and may have a definite rigor, he feels very weak and is glad to take to his bed, there are insomnia, feverishness, and restlessness, anorexia and vomiting are frequently present. The temperature rises suddenly and remains up for a couple of days and then falls to normal, but latterly the tendency is for the fever to be slight, but to last longer—nine or ten days—the pulse is never at any time much increased in frequency. Clinically, influenza divides itself into three types—(1) The gastro-intestinal; (2) the pulmonary; (3) the cerebral, according to the system which is most affected.

I have had under observation lately several cases of the gastro-intestinal type, in which all the general features were well marked—headache, pains in the back and down the legs, shivering, a feeling of depression, weakness and lassitude, restlessness and insomnia, with slight elevation of temperature of pulse. The symptoms which characterised the condition, however, was the sudden onset of an attack resembling acute gastritis coupled with diarrhœa. After a feeling of nausea lasting some hours the patients vomited, and when the stomach was cleared of its contents they felt much easier. Soon afterwards diarrhœa commenced, and lasted for some days. There was abdominal pain of a colicky nature for a day or two. The best means of treatment I found was complete starvation, or at most a little milk; any food given only causing a recurrence of the vomiting. If treated in this way

the patients could be gradually allowed back to ordinary diet after a few days. In spite of the apparent slightness of the attack it was always followed by marked weakness—it being ten days or a fortnight before they regained their strength.

The pulmonary type is by far the most common and also the most dangerous, including as it does cases varying from a slight pharyngitis to most severe pneumonia. In addition to the general symptoms these cases are characterised by nasal and pharyngeal catarrh with a cough and scanty expectoration which lasts some nine or ten days. This, of course, is the ordinary type of the disease and needs no further reference. But instead of stopping here it may progress and cause the complications of bronchitis and pneumonia which are nothing more or less than an extension downwards of the original condition. In a case in which I was interested some time ago influenza was diagnosticated and the patient was put to bed, but did not progress favourably—the temperature and pulse still kept going up and he became delirious. Up to this time no definite clinical signs could be discovered except that a slight trace of albumen had been found in the urine, but on the fifth day he developed a basal pneumonia. In addition to this the nasal mucous membrane and pharynx became inflamed and extremely congested, and epistaxis occurred. The patient also became temporarily deaf. His condition was very grave, and the hope of saving his life was almost abandoned, when about the tenth day the symptoms began to abate. There was no definite crisis. Convalescence was slow but uninterrupted, and led finally to a perfect recovery, his hearing being restored and the albuminuria clearing off in time. Another somewhat similar case which was treated for influenza for some days developed pneumonia, death occurring within four days of the onset of the serious symptoms. The prognosis of influenzal pneumonia is very grave, and as this condition is present in 7 per cent. of the cases it is quite sufficient to justify us in not treating

it lightly or giving an unguarded prognosis till they have been under observation for a couple of days. A rare sequel is neuritic changes; these may be evidenced by the onset of spasmodic asthma in people who previously showed no signs of it, or it may be the cardiac nerves which are affected, neuralgia and angina showing themselves and sometimes leading to a fatal termination. There are cases recorded of apparently a chronic form of influenzal pneumonia which simulated phthisis closely, even causing hæmoptysis, recovery as a rule taking place in a couple of months; but some terminated fatally, and *post-mortem* cavities were found which contained an organism of the influenza group, tubercle bacilli being absent.

The depression, which is usually a prominent symptom of the disease, shows that the toxin always exerts some influence on the nervous system. As a rule it stops here; sometimes neuralgia, herpes zoster, or similar conditions occur as complications. But outside of these there are a group of cases in which the main symptoms are nervous or mental, and which I wish to include in the cerebral type of influenza. Neuralgia, especially of the fifth nerve, is fairly common. I was interested in several cases in which it was the prominent symptom, attacking the patient one or two days after the onset of the general symptoms. It usually lasted about ten days, and the only drug which I found controlled the pain was aspirin in 15 gr. doses. Neuritis may occur in any nerve, sometimes attacking the cardiac nerves, with fatal results; but this is rare, and is really a sequel and not a primary evidence of the disease. Another sequel of a similar nature, and one which is fairly common is anosmia. The more serious forms of this type resemble attacks of acute meningitis, and have recently caused some interest on account of the great difficulty in their diagnosis. A case of this kind came under my notice some time ago. The patient was a woman, aged twenty-three, and she came to hospital complaining of the usual symptoms of

influenza, and, in addition, marked headache and vomiting. The temperature was  $102^{\circ}$ , and the pulse 66. She was admitted, and the next day the head was retracted, the pupils unequal and sluggish in reaction. The headache continued to be very severe, and she had developed a meningeal cry. She continued in this condition for eleven days, and then the headache ceased and the retraction passed away; but it was found that she had developed a convergent strabismus, and that the right patellar reflex was lost. On examining the eyes at this stage there was double optic neuritis, a white exudation on and around the disc, and retinal hæmorrhages in both eyes. A week later she was almost all right again except the eye symptoms, the patellar reflex having been restored in a couple of days; the optic neuritis was disappearing, but there was still some exudation present, and the hæmorrhages were not completely absorbed. The strabismus lasted for about two months before it finally disappeared. The diagnosis of the case was extremely difficult, and was largely based on the duration of the symptoms, the rapidity with which they disappeared, and the speedy and complete convalescence, the eye symptoms being the only ones which lasted more than two weeks.

Mental changes manifest themselves usually as sequelæ, but sometimes they occur soon after the onset of the symptoms, as in most of the toxic insanities the tendency is towards recovery, which, however, may be delayed for a considerable period. I recollect two cases which had temporary mental aberrations, one patient lost her reason for about twenty-four hours, getting up and wandering round the house accusing and threatening punishment to people for things which were not happening; the other was a patient who for some days suffered from a slight attack of influenza, and, losing her memory, one morning she left the house and wandered for nearly ten hours on the streets till, almost collapsed, her appearance attracted the notice of a policeman, who took her to

the Station where, some hours later, she recovered herself and was able to give her name and address.

A startling variety of the disease is the comatose, in which the person suddenly becomes giddy, then passes into convulsions followed by a long period of unconsciousness which is accompanied by a high temperature, useful as a diagnostic point. Hysteroid convulsions, the recrudescence of epilepsy and catalepsy have occurred as complications. In Switzerland in 1899 there were reported several cases of *nona*, a condition of apparent death—several times the death certificate having been signed, the person subsequently recovering consciousness. Bulbar paralysis, anterior poliomyelitis, Landry's paralysis, disseminated and ascending myelitis, have all been recorded as sequels. The more severe mental sequelæ are specially liable to occur in those who continue at their work during the course of the disease. Melancholia is the rule in about 70 per cent. of post-influenzal insanities—the prognosis is good, but the cases require careful watching. In the other 30 per cent. mania occurs, and is more liable to be a permanent condition.

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#### MOTOR ROAD MAPS.

WE notice that Horlick's Malted Milk Co., of Slough, Bucks., manufacturers of the well-known Horlick's Malted Milk, are offering to the Medical Profession, free, a series of well-arranged Motor Road Maps of England, Scotland, and Ireland. They are beautifully got up, and are each printed separately, upon tough, strong paper, folded into leatherette cases, the whole forming a very compact series. The roads are accurately set out as to distances. The classification, also, is most effectively shown. A prospective journey can be laid out with precision, before starting. The Maps can be carried in the coat pocket and may be easily and quickly referred to at any time. With a set of these Maps and a supply of Horlick's Malted Milk one can embark, without trepidation, upon a motor journey from John o' Groats to Land's End, or from Malin Head to Cork.

## PART II.

### REVIEWS AND BIBLIOGRAPHICAL NOTICES.

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*Practical Physiology.* Edited by M. S. PEMBREY. Contributors, A. P. BEDDARD, M.A., M.D.; LEONARD HILL, M.B., F.R.S.; J. S. EDKINS, M.A., M.B.; J. R. MACLEOD, M.B.; MARTIN FLACK, M.A., M.D.; and M. S. PEMBREY, M.A., M.D. Third Edition. 1910. Demy 8vo. Pp. xviii + 480. London: Edward Arnold.

THE first edition of this Manual of Practical Physiology appeared in 1902 and was succeeded by a second three years later. The present issue is in many respects an improvement on either of the previous ones, and will be found correspondingly more useful as a laboratory text-book.

The subject-matter is now divided into two parts instead of four as previously. The first part deals with general practical physiology, the second with physiological chemistry. The further sub-division of each section into elementary and advanced courses is omitted from the present edition.

The scope of the book may be gauged by the fact that Part I. consists of seventy-four chapters, and Part II. of twenty-three. Of the seventy-four chapters in the former, twenty-four are devoted to muscle-nerve experiments, ten to experiments on the heart, nine of these being on the heart of the frog, eight to other exercises and experiments on the circulation, thirteen to experiments on respiration (four of which involve chemical analyses), eight to experiments on the eye, five to experiments on the nervous system, and the remainder to various exercises.

The amount of space devoted to muscle-nerve and frog heart work is, no doubt, relatively large, but all the ex-

periments are good, and a selection can always be made in accordance with the predilections of the different laboratories in which the book may be used.

The following important exercises have been added to Part I.:—Dissection of the A-V bundle in a sheep's heart, description and application of the Mackenzie polygraph, substitution of the pithed for the anæsthetised cat or rabbit in certain experiments on the cardiac and vaso-motor nerves, description of Sherrington's mammalian preparation, an exercise on the collection and analysis of alveolar air, another by Hertz on the use of the Röntgen-rays in studying digestion, and lastly one on cutaneous and muscular sensations. Two sets of experiments have been omitted from this section—namely, those concerned with the so-called Pflüger's law of muscular contractions, and Head's experiments on respiration made with the slip of the rabbit's diaphragm.

In the section of physiological chemistry the number of chapters has been reduced as compared with previous editions, but this has been achieved by combining in one and the same chapter the elementary and advanced work on such subjects as proteins, milk, blood, muscle, &c. This part of the book is much improved; it has been entirely re-cast, and many additions have been made. The new matter includes quantitative methods of estimating glycogen, additional methods for the quantitative estimation of the sugars, a statement of the so-called "fat values," methods for the quantitative estimation of acid in gastric juice, Folin and Schafer's methods of estimating urea and ammonia, methods of estimating lactic acid, and, lastly, exercises on hæmolysis and precipitins.

The chapters on proteins, milk, blood, muscle, and dietetics have been re-written by Dr. Martin Flack.

The chemical section well maintains the all-round excellence of the book. There are, however, some minor improvements that might be suggested for a future edition. Thus the application of the Kjeldahl method to the determination of nitrogen in food stuffs requires

special description and makes an exercise in which the use of the balance—all too neglected in physiological chemistry—is required. Similarly a useful piece of work which also involves weighing would be the incineration, quantitative estimation, and qualitative analysis of the ash of a piece of bone or of some other tissue. The counterpart of the former experiment—namely, the decalcification of bone and examination of the organic matter—could readily be combined with it. Again, there is no mention of how to demonstrate iron in hæmoglobin—the one element on which its most important property mainly depends. Lastly, and, perhaps, more to be regretted, is the omission of methods for detecting the chief elements in organic compounds. These, however, are all minor defects in comparison with the positive worth of the book as a whole.

Some new illustrations have been added and are good; but even the authors would probably admit that those of the absorption spectra of hæmoglobin and its derivatives are not quite up to standard. Nor should the antiquated and absurd illustration of the apparatus used and method followed in a Kjeldahl distillation have been reproduced.

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*Surgical After-Treatment.* A Manual of the Conduct of Surgical Convalescence. By L. R. G. CRANDON, A.M., M.D.; Assistant in Surgery at Harvard Medical School; Assistant Visiting Surgeon to the Boston City Hospital; Consulting Surgeon, Frost General Hospital. With 265 Original Illustrations. Philadelphia and London: W. B. Saunders Company. 1910. Royal 8vo. Pp. 803.

THE number of books considered necessary at the present day for the full equipment of the surgeon is rapidly increasing. In addition to the usual books on Surgical Diagnosis, Surgical Pathology, Surgery and Operative Surgery, we now have this book of 800 pages devoted to Surgical After-treatment added to the list. The author in his preface says that these suggestions for after-treat-

ment of surgical cases are written for two classes of practitioners—house surgeons in hospitals and general practitioners in communities which are not surgical centres. The book would certainly be useful to house surgeons, provided they had the time to read it. To general practitioners, in this country at least where conditions differ greatly from those present in America, we do not think that the book will make a strong appeal. But we can strongly recommend the book to all younger surgeons, and especially to those just starting in practice, whose experience in the treatment of cases is necessarily limited.

The book is divided into two parts. The first part, in thirty-nine chapters, considers in a general way everything which concerns the comfort of the patient, and describes all the various complications and sequelæ resulting from the anæsthetics or the operation, and the means of prevention and treatment. The second half consists of twelve chapters on the after-treatment of special operations, divided according to the region of the body involved in the operation. There are in addition a chapter on Therapeutic Immunisation and Vaccine Therapy and on Coley Serum for Malignant Tumours. The book ends with an appendix on some invalid and convalescent food recipes.

The book is well printed, the illustrations are numerous and for the most part good; but we would suggest that, owing to their small size, some showing various operative procedures are of little or no use.

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*Manual of Diseases of Women.* By W. E. FOTHERGILL, M.A., B.Sc., M.D., Assistant Gynæcological Surgeon Royal Infirmary and the St. Mary's Hospitals, Manchester; Clinical Lecturer on Obstetrics and Gynæcology in the Victoria University of Manchester. With 144 Illustrations in the Text. Edinburgh and London: William Green & Sons. 1910. 8vo. Pp. xix + 433.

DR. FOTHERGILL'S latest work presents many features of interest and originality. It is divided into three parts—the

first of which deals with the diagnosis of gynæcological cases, the second with diseases of women, and the third with the management of gynæcological cases. The second part is subdivided into sections according to the classification of diseases of women which Dr. Fothergill adopts. These sections are—"errors of development," "circulatory changes," "mechanical conditions and injuries," "results of infection," and "progressive conditions." Under the latter not very apt term are included "overgrowth and new growths"—*e.g.*, sub-involution, tumours of the uterus and appendages, and the different forms of cysts.

The operative portions of the book are poor, and much too concise to be of practical use, especially in the absence of sufficient illustration. The teaching in the other portions is in the main sound, but we do not care very greatly for the classification of subjects which the author has adopted.

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*Transactions of the American Pediatric Society.* Twenty-first Session. Held at Lenox, Mass., on May 27th and 28th, 1909. Edited by LINNAEUS EDWARD LA FEBRA, M.D. Vol. XXI. Reprinted from Archives of Pediatrics, 1909-10. New York: E. B. Treat & Co. 1910. 8vo. Pp. viii + 207.

IN its editing and general arrangement and appearance the Twenty-first Volume of the "Transactions of the American Pediatric Society" is a credit to all concerned in its production. On the whole, the printing and the illustrations (some of which are from skiagrams) leave little to be desired. The communications published, not including the discussions on them, which are also reported, are twenty-two in number, and are confined strictly to pediatrics, considered for the most part from the physician's point of view.

The majority of papers deal with instructive and interesting clinical cases that have been treated by the members. For instance, Dr. Crozier Griffith, writing on so-called "Thymus-Death," describes seven cases amongst the children of one family, all of whom succumbed

suddenly, in similar circumstances, with symptoms of mild bronchitis, followed rapidly by cyanosis and intense dyspnoea. At the only autopsy that was obtained the thymus gland was found to be greatly enlarged; but there were no signs of pressure on such vital structures as the trachea or bronchus.

After examining the urine in three hundred cases of gastro-intestinal disease in infancy Drs. Morse and Crothers conclude that albuminuria occurs in 8 to 10 per cent. In chronic cases they infer that there is no relation between albuminuria and mortality, and that albuminuria does not materially modify the prognosis in acute cases, although it is true the mortality is higher in acute cases. They are also of opinion that œdema occurring in the course of diseases of the gastro-intestinal tract is not due to the condition of the kidneys.

Dr. Snow gives an account of Finkelstein's work on Infantile Alimentary Intoxication. According to that Continental authority the digestive troubles of babies are more frequently due to perverted metabolism and to the toxic effects of food elements, fats, and carbohydrates, than to bacterial infection.

We are not called on here to review in detail the numerous subjects of discussion. It must suffice to say in a general way that clinical and bacteriological investigations receive their due share of attention, while some able writers devote their energies to the problem of child-labour and other sociological questions.

In conclusion we congratulate the Society on the usefulness of the work presented to the medical profession in the Transactions of this Session.

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*Physical Examination and Diagnostic Anatomy.* By CHARLES B. SLADE, M.D. Philadelphia and London: W. B. Saunders Company. 1910. 12mo. Pp. 146.

THIS is a short, clear treatise on the above subjects. One characteristic which is especially worthy of praise is the absence of personal names.

The bad habit of attaching men's names to anatomical structures and signs of disease finds its popularity partly in the pride of those Schools in which the supposed original describers worked, and partly these names are used to evade the difficulty which attends accurate description.

In the case of a student no possible benefit can arise from such a practice, whereas great harm usually does so arise.

The descriptions in this volume are clear and concise. The print is large and good. The subject-matter is excellent.

We can thoroughly recommend the work to all students, and also to teachers who wish to improve and verify their methods of teaching.

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*Dispensing Made Easy : With Numerous Formulæ and Practical Hints to secure Simplicity, Rapidity and Economy.* By WILLIAM G. SUTHERLAND, M.B. Aberd. : Formerly House Surgeon Queen's Jubilee Hospital, Earl's Court, London, S.W. ; Civil Surgeon-in-Charge Orange River Military Hospital, Boer War, 1900. Fourth Edition. Revised by F. J. WARWICK, B.A., M.B., Cantab., M.R.C.S., L.S.A. Bristol : John Wright & Sons, Ltd. ; London : Simpkin, Marshall, Kent & Co., Ltd. 1910. Pp. viii + 102.

THIS excellent handbook of pharmacy is intended for the use of general medical practitioners who compound their own prescriptions and for the use of the prescription dispensing department of our hospitals. For such uses it is very valuable ; and since the extra duty has been put on alcohol by Mr. Lloyd George a great saving in the drug bills of the practitioners and of our hospitals would be effected by preparing and using the concentrated liquors recommended by Dr. Sutherland. As therapeutic agents these liquors are quite equal to these tinctures, concentrated infusions, and *Succi* ordinarily met with, and their keeping power is, if anything, much superior.

With absolute alcohol at its almost prohibitive price we think our hospital committees should call on their medical

staffs to use aqueous preparations in preference to alcoholic ones, where such can be done without disadvantage to the patients. And we may add that we consider the formula of "Dispensing Made Easy" much the best of any known to us.

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*A Manual of Operative Surgery.* By SIR FREDERICK TREVES, Bart., G.C.V.O., C.B., LL.D., F.R.C.S., Serjeant-Surgeon to H. M. The King; Surgeon-in-Ordinary to H. R. H. The Prince of Wales; Consulting Surgeon to the London Hospital; and JONATHAN HUTCHINSON, F.R.C.S., Surgeon to and Lecturer on Surgery at the London Hospital; Examiner in Surgery to the Queen's University, Belfast. Third Edition. With 16 New Coloured Plates and New Illustrations in the Text. In Two Volumes. Vol. II. London: Cassell & Co., Ltd. 1910. Pp. vii + 821.

A CAREFUL perusal of the volume before us has by no means convinced us that it has been as carefully revised as we should have expected considering the reputation of its authors, while our perusal of the first volume gave us hopes of a more up-to-date revision of the second volume than we find to be the case.

The opening section is devoted to operations on the head, neck and spine, but we look in vain for any reference to the work of Harvey Cushing, of the Johns Hopkins Hospital, Baltimore, save in connection with the removal of the Gasserian ganglion. One would at least have expected to see a description and illustration of his subtemporal decompression operation for the relief of cerebral compression the result of intracranial hæmorrhage following basal fracture.

The chapter devoted to operations on the breast is, in our opinion, very poorly revised. Mr. W. Sampson Handley's name is not mentioned, and yet we venture to assert that Mr. Handley's work in connection with the spread of breast cancer by lymphatic permeation has done more to make clear what the surgeon should aim at in endeavouring to perform a radical operation for the cure of breast cancer than the work of any other surgeon during the past twenty years. No chapter on the removal of the breast for cancer can be complete or up-to-date which does not illustrate and describe

Mr. Handley's operation. Indeed, the illustrations in this section are four in number, three of which may be said to be purely anatomical—one shows the axilla dissected, a second shows a section through the breast after Testut, and the third shows the blood supply of the breast also from Testut. The fourth illustration depicts two lines of incision for the removal of a mammary cancer. Speaking generally, the illustrations are about the weakest part of the work. In our opinion a good text-book of Operative Surgery would contain at least ten times as many illustrations as we find in this work. In fact the work should be mainly illustrations, and if the illustrations were what they should be the descriptive matter could be reduced almost to a minimum.

The work of J. B. Murphy and Rudolph Matas on arteriorrhaphy and its application to the treatment of aneurysm is conspicuous by its absence. It is unnecessary to give further examples of omission in connection with the revision and general rearrangement of this well-known work to bear out our opening statement.

Many men, it is well known, live on a reputation acquired in the past, and it would almost look as if the third edition of the work before us is expected to live on the reputation which the first edition acquired. It is true the work has been rearranged, and the first volume bears evidence of the subject matter having been revised in many respects, but, in our opinion, it is far from fulfilling the requirements of a thoroughly sound up-to-date text-book of Operative Surgery representative of operative surgery as it is practised to-day.

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*The Treatment of Syphilis by the Ehrlich-Hata Remedy.* A Compilation of the Published Observations by DR. JOHANNES BRESLER. Second Edition. Translated by DR. M. D. EDER. London and New York: Rebman, Ltd. 1910. Cr. 8vo. Pp. xii + 122.

THE second edition of this little book comes opportunely with the placing on the market of the much-talked of Ehrlich-Hata remedy. We are sure that the book will be eagerly read. It presents in handy form a summary of all the literature

dealing with the drug. In saying this we have said enough, as a reviewer is not expected to criticise the facts contained in a compilation such as the present. The work of compilation appears to us to have been well and thoroughly done, and the translator has also done his part well. All the clinical aspects of the subject are dealt with, and the results in varying types of cases stated.

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*Salvarsan, or 606 : Its Chemistry, Pharmacy and Therapeutics.*

By W. HARRISON MARTINDALE, F.C.S., and W. WYNN WESTCOTT, M.B. London : H. K. Lewis. 1911.

WE have read this book with much interest, and strongly recommend it to all medical men who are desirous of making use of Salvarsan in their practice, or who wish to form an opinion concerning the merits of this drug as a cure for syphilis. The book consists of a careful and not overlaid summary of all the very numerous papers that have appeared in connection with the use of the famous Ehrlich-Hata remedy. The chemistry of the drug is explained, the therapeutic results obtained are detailed, the methods of administration are described, the dosage is discussed, the contra-indications are enumerated, and in short every question in connection with the use of this chemical compound as a drug is dealt with in a brief but complete fashion.

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*A Treatise on Materia Medicine and Therapeutics.* By RAKHALDAS GHOSH, L.M.S., Cal. Univ., Lecturer on Materia Medica, Calcutta Medical School. Edited by J. T. CALVERT, M.B. (Lond.), M.R.C.P. (Lond.), Lieut.-Colonel, Indian Medical Service, Professor of Materia Medica and Therapeutics, Medical College of Bengal ; Physician to the College Hospital ; Fellow of the University of Calcutta. Fourth Edition. Calcutta : Hilton & Co. 1910. Cr. 8vo. Pp. xii + 742.

In the number of the Journal for April, 1905 (Vol. CXIX., No. 400, Third Series, page 285), the Third Edition of this standard work was favourably noticed. That edition was

published under pathetic circumstances, for its talented Indian author had lately died, leaving the completion of his unfinished task to the capable and sympathetic hands of Lieut.-Colonel C. P. Lukis, then acting as Professor of Therapeutics in the Calcutta Medical College.

The well-merited promotion of Surgeon-General Lukis having prevented him from undertaking the preparation of a new issue, the work was entrusted to Lieut.-Colonel J. T. Calvert, I.M.S., Professor of Materia Medica and Therapeutics in the Medical College of Bengal. He has discharged his task with much skill and sound judgment. The work has been thoroughly revised, and the Editor, in a few graceful and generous words in his brief Preface, acknowledges the cordial assistance and co-operation he has had at the hands of Dr. B. N. Ghosh, L.M.S. (Cal. Univ.), "the able son of a talented father."

The work consists of seven parts, of which the headings will show its comprehensive character—Materia medica proper, pharmacy and dispensing, administration of drugs, pharmacology and therapeutics, materia medica and therapeutics, serum therapeutics, and organo-therapy.

The volume is brimful of information. We do not remember to have met with a more concise or a clearer account of the official or pharmacopœial preparations than that which is given between pages 16 and 62. It presents the reader with an admirable summary of the British Pharmacopœia. Under the heading "Non-official and Non-pharmacopœial Preparations" it is somewhat amusing to find "Balnea, Baths"; "Enemata," "Fomenta," "Gargarismata," and such like.

Parts VI. and VII. give a good account of serum therapeutics and of organo-therapy respectively. In the former the readers meet repeatedly with the barbarous so-called Latin plural of serum. This section includes brief descriptions of Haffkine's anti-cholera and anti-plague inoculations, Wright's and Semple's anti-typhoid inoculation, Pasteur's treatment of hydrophobia, Shiga's anti-dysenteric serum, Yersin's antiplague serum, Dunbar's hay-fever specific, prepared by immunising horses with irritant toxins obtained from the pollen of grasses—hence the name "Pollantin" which has

been applied to the fluid serum preserved by the addition of .25 (one quarter) per cent. carbolic acid. Three other preparations are also considered, namely—Koch's tuberculin, T. R., Coley's fluid for sarcoma, and Almroth Wright's staphylococcic vaccine.

The whole work reflects much credit on the Calcutta Medical School, the Editor, and the Publishers alike. It is a cheap book, costing only 5 rupees, or seven shillings and sixpence.

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*The Problem of Race Betterment.* By J. EWING MEARS, M.D., LL.D. Philadelphia: Wm. J. Dornan. 1910. Pp. 45.

THIS book includes three short papers read at American Medical Societies during the past five years upon the subject of Eugenics or Race Betterment as accomplished by surgical procedures.

The author is a vigorous advocate for the sterilisation of confirmed criminals, idiots, epileptics, imbeciles, and "rapists," as is already permitted, if not actually prescribed, in the States of Indiana and California. He urges that such persons, if armed with the potentiality of propagating their kind, are as dangerous to the integrity of the State as the foe armed with the weapons of warfare: and he draws attention to the fact that in many of these persons sterilisation is actually curative as regards the individual.

The method he advocates in the male is ligature of the spermatic cord with or without inclusion of the filaments of the nerve.

The whole subject deserves careful consideration, and we hope that the medical profession will not neglect it, so that when the matter arrives here at the stage it seems to have already attained in America a sound judgment may be possible.

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*Hay Fever and Paroxysmal Sneezing.* By Eugene S. Yonge, M.D. Edinburgh: W. Green. 1910.

DR. YONGE has given us in a volume of 250 pages octavo an excellent monograph on hay fever.

The question of aetiology is treated lucidly, the various

theories being briefly and clearly stated under the following headings:—(1) Atmospheric, (2) Mechanical, (3) Microbic, (4) Nasal or Pathological, (5) Constitutional, (6) Theories assuming several causes in combination, (7) The Pollen theory, with its adjunct the toxin theory of Dunbar.

The work is very complete as regards the sections upon symptomatology and treatment, and will be useful to medical men interested in this distressing and puzzling malady.

### RECENT WORKS ON ORGANIC CHEMISTRY.

1. *Laboratory Notes on Organic Chemistry for Medical Students.* By PAUL HAAS, D.Sc., Ph.D. London: Macmillan & Co. 1910. Cr. 8vo. Pp. viii + 128.
2. *Introduction to Practical Organic Chemistry.* By A. M. KELLAS, B.Sc. (Lond.), Ph.D. (Heidelberg). Oxford Medical Publications. London: H. Frowde: Hodder & Stoughton. 1910. Demy 8vo. Pp. ix + 204.

CHEMISTRY is, we fear, a bugbear to most medical students, and yet without its aid it is impossible to clearly follow or really comprehend a large, perhaps the larger, part of physiology or pathology, and, consequently, of clinical medicine and therapeutics.

Organic Chemistry—*i.e.*, the chemistry of the carbon compounds—is specially important to the medical student. Its fundamental principles, and, to some extent, its methods, which differ considerably from those used in inorganic chemistry, should, if possible, be mastered, and no practitioner can be considered well-informed who is totally ignorant of its scope and achievements.

A few years ago an English version of Dr. Bunge's admirable text-book of Organic Chemistry for Medical Students appeared, and a study of this lucid and charmingly-written book is well calculated to vivify and stimulate the reader's interest in chemical physiology.

Bunge's book deals only with the first principles of the science, and scarcely touches upon experimental work. The two books under review represent, on different scales, an attempt to furnish students with a course of practical

instruction on those parts of Organic Chemistry which are more closely related to Medicine, and, hence, they are to be heartily welcomed. Each is written by a teacher of chemistry in one of the London Medical Schools. Dr. Haas hails from St. Thomas' Hospital Medical School and Dr. Kellas from the Middlesex Hospital Medical School, and each book covers more ground than is prescribed by the London University Syllabus. Herein lies the weakness of both books, especially the smaller work of Haas. It is more than questionable if a satisfactory grasp of the subject can be obtained by isolated study of a few detached examples—*e.g.*, in Haas' book the following substances only are discussed in the body of the book, under the following curious and illogical grouping—*viz.*, Acids, General, Carbohydrates, Physiological. Relegated to an appendix, for reasons which are not clear, are given the reactions for some additional acids.

1. To give a brief summary of Haas' volume we note that the contents are distributed under these heads, *viz.* :—

(a) Some general processes—*e.g.*, crystallisation, melting point, boiling point, fractional distillation, steam distillation, and cryoscopy.

(b) Preparations—of salts from acids, and *v.v.*; esterification, hydrolysis and saponification of fats, preparation of urea.

(c) Quantitative analysis—nitrogen, fat, urea, uric acid, glucose, and cane sugar.

(d) Qualitative analysis.

In the appendix are articles on the Properties of Colloids, Law of Mass-action, and the Half-Shadow Polarimeter.

2 Is a more ambitious and more systematically arranged book. Any student who has conscientiously worked through its operations would undoubtedly have a considerable and sound practical knowledge of the most important data of physiological chemistry. In truth, the book goes far beyond the capacity, or the available time at the disposal, of the over-burdened student of the present day.

This will appear from the following synopsis of contents :—

Qualitative analysis of organic compounds for elements.

General laboratory operations, preparation of typical organic compounds, tests and analysis for specific compounds, detection of the group to which an organic compound belongs.

Qualitative analysis.

Some additional special information is supplied in two appendices.

In describing the tests for acetone, Kellas correctly gives credit to Emerson Reynolds for the mercuric oxide test, whereas Haas wrongly ascribes it to Gunning.

Under cholesterol is mentioned Obermüller's recently-devised test based upon the beautiful display of spectral colours which cholesterol esters exhibit upon cooling after cautious heating, and which have been demonstrated by the reviewer on several occasions.

The printing and execution of the book are clear and excellent, and it is one which we can highly recommend as a reliable and well-arranged text-book.

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*Urgent Surgery.* By FÉLIX LEJARS, Professeur Agrégé à la Faculté de Médecine de Paris; Chirurgien de l'Hôpital Saint Antoine; Membre de la Société de Chirurgie. Translated from the Sixth French Edition by WILLIAM S. DICKIE, F.R.C.S., Surgeon North Riding Infirmary, Middlesborough; Consulting Surgeon Middlesborough Union Infirmary; Consulting Surgeon Eaton Hospital. With 20 full-page Plates and 994 Illustrations, of which 602 are drawn by DR. E. DALEINE and A. LEUBA, and 217 are from original photographs. Vol. II. The Genito-Urinary Organs—The Rectum and Anus—The Strangulated Hernias—The Extremities. Bristol: John Wright & Sons, Ltd. 1910. 8vo. Pp. vii + 580.

IN our review of the first volume we stated that it was by far the most practical work of the kind with which we were acquainted, and having carefully read through this second volume we have no hesitation in stating that it equals in

every respect its predecessor. There is not a page which does not show its author an eminently sound, practical surgeon. The text is practical and to the point, while the illustrations are numerous, well chosen and highly educative.

To go through the book in detail would be a work of supererogation. It is, in a word, the best book extant on the subject of "Urgent Surgery," and no junior surgeon can afford to be without it.

The translator deserves the thanks of all those who cannot read the original for placing this great work within their reach.

The author, the translator, and the publishers are alike to be congratulated on the excellence of their work.

*A System of Medicine.* By Many Writers. Edited by SIR CLIFFORD ALLBUTT, K.C.B., M.A., M.D., LL.D., D.Sc., F.R.C.P., F.R.S., F.L.S., F.S.A., Regius Professor of Physic in the University of Cambridge; Fellow of Gonville and Caius College; and HUMPHRY DAVY ROLLESTON, M.A., M.D., F.R.C.P., Senior Physician, St. George's Hospital; Physician to the Victoria Hospital for Children; sometime Fellow of St. John's College, Cambridge. Vol. VIII. Diseases of the Brain and Mental Diseases. London: Macmillan & Co. 1910. Svo. Pp. xii + 1070.

ALLBUTT'S AND ROLLESTON'S "System of Medicine" is approaching completion. This is the eighth volume, and the ninth—soon so to be published—will complete the work. The present volume differs from Vol. VIII. of the first edition, published in 1899, in not containing "Diseases of the Skin," which will form the attractive subject-matter of the concluding volume (IX.) of this second edition of the *System of Medicine*.

The new articles in the volume now under review are those on "Meningitis," by Dr. Frederick E. Batten, in which the author deals with all forms of meningitis, except that due to tuberculosis; on "Acute Polioencephalitis," by the same author; on "Recurrent Paralysis," by Professor J. Michell Clarke, of Bristol; and on "Apraxia and Agnosia," by Dr. James Collier, of St. George's Hospital.

Dr. Collier has also revised Dr. Charlton Bastian's article

on "Aphasia," and Dr. Henry Head has re-written the account of "Occupation-Neuroses" contributed to the former edition of the *System* by the late Dr. Vivian Poore. Sir Clifford Allbutt has largely rewritten and expanded his own scholarly article on "Neurasthenia."

The volume may be regarded as divided into two parts. The first 820 pages, or so, are devoted to Diseases of the Nervous System in continuation of Volume VII. The last 230 pages deal with Mental Diseases. This part of the book opens with an "Introduction" from the pen of Dr. George H. Savage. His own definition of "insanity" is worth quoting: "Insanity is such a disorder or disease of the nervous system as prevents the individual from reacting normally as a member of the Society to which by birth and education he belongs. Conduct or behaviour in relationship to Society is the gauge. It is not all insanity which requires outside control" (page 823).

Among the many instructive articles in this part of the volume may be mentioned that on "Insanity and Surgical Operations" by Clinton T. Dent, M.C., Senior Surgeon to St. George's Hospital; that on "The Epochal Insanities," by Dr. T. S. Clouston, of Edinburgh; and that on "Insanity and Epilepsy," by Dr. Robert Jones, of St. Bartholomew's Hospital.

Taking it all in all, this volume maintains in all respects the high standard of excellence of the *System of Medicine*.

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*Nisbet's Medical Directory, 1911.* London: James Nisbet & Co. 8vo. Pp. xx + 866.

THIS work has two distinguishing characters—the simplicity of its arrangement and its cheapness. It costs seven shillings and sixpence net. It is divided into two parts. Part I., occupying 720 pages, is a Directory of Medical Practitioners arranged in alphabetical order. Each entry includes the surname, initials of the name or names, postal address, University degrees and qualifications to practise, place of education, chief appointment, and one literary contribution. We have tested many of

the entries, and have found them to be wonderfully correct.

Part II. is a local Directory, in which are included in alphabetical order the names of places in all parts of the world, and underneath each place a list of the Registered Medical Practitioners resident thereat. No effort has been spared to obtain reliable information. In the case of individuals who have not made a return on the schedules issued in the compilation of the 1911 edition, the name, address, and medical titles have been adopted from the Medical Register. In those instances in which the application for information has been returned through the post marked "Gone away," the official address has been omitted.

The volume is of handy size, well printed, and neatly bound.

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*Text-book of Massage.* By L. L. DESPARD, Member and Examiner, Incorporated Society of Trained Masseuses. London: Henry Frowde and Hodder & Stoughton. 1911. Large 8vo. Pp. xix + 290.

A WORK of this kind will go far to rescue massage from the risk of falling into disfavour in consequence of the practice of the art by unsuitable persons. As Dr. James Little truly observes in the Foreword which he has written, "there are only a certain number of those who adopt it as a profession who have the physical and the mental qualities necessary for its successful practice—the tact, the judicious firmness, the wise reticence, the sympathetic disposition without which success is not to be obtained."

Miss Louisa Despard has contributed in the work before us a scholarly treatise on massage and its applications in medical and surgical practice.

The book opens with a brief introduction, containing a definition of massage and half a dozen excellent rules to be observed by all who practise it.

Part I. is anatomical, and includes ten chapters in

which are set out the principles of elementary anatomy and physiology so far as they are indispensable to the student of the art. These chapters are profusely illustrated, for the most part with drawings from D. J. Cunningham's "*Text-book of Anatomy*," the source of which is duly acknowledged.

Miss Despard's work proper begins with Part II., on the "*Theory of Massage*." It includes eleven chapters, of which the first deals with the influence of massage upon the nervous, vascular, respiratory, muscular, and digestive systems. A classification and description of movements, with their physiological and therapeutic effects, are the subject-matter of the second chapter. A full description of massage as applied to different parts of the body and in certain morbid conditions is postponed to Chapter IV. and the following chapters up to and including Chapter IX. A short chapter follows on lubricants, fomentations and bandages, and the work closes with a very good account of electrical methods in conjunction with massage. It is illustrated by means of blocks lent by Messrs. K. Schall & Son, of London.

Mention should be made of the series of photographs taken by Dr. R. Atkinson Stoney, F.R.C.S.I., for the purpose of representing the various manœuvres in practical massage. They are admirably clear and most instructive. The cleverness with which the features of the masseuse have been eliminated from the several photographs is very striking, and is quite in keeping with the high ethical and professional standard of the work, which is one of the now famous Oxford Medical Publications.

We heartily congratulate our talented fellow-countrywoman on her "*Text-book of Massage*."

PART III.  
MEDICAL MISCELLANY.

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*Reports, Transactions, and Scientific Intelligence.*

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ROYAL ACADEMY OF MEDICINE IN IRELAND.

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President—SIR CHARLES BALL, M.D., F.R.C.S.I.  
General Secretary—J. A. SCOTT, M.D., F.R.C.S.I.

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SECTION OF PATHOLOGY.

President—A. H. BENSON, M.B., F.R.C.S.I.  
Sectional Secretary—W. BOXWELL, M.D., F.R.C.P.I.

*Friday, November 4, 1910.*

THE PRESIDENT in the Chair.

*The Fringes of the Cancer Problem.*

MR. WM. SAMPSON HANDLEY said he was connected with a hospital where for over a century there had been every opportunity for observing cancer, as it contained wards for inoperable cases, which could remain until released by death. It would be more interesting to those present, and it would be more congenial to him, if, instead of embarking on the sea of speculation, he brought before them some observations which he had been able to make, and left them to do the speculating thereon. He believed that the cancer problem was best approached by tackling its fringes, rather than by a frontal attack on its central mystery. He would therefore speak mainly on dissemination. Until a few years ago the theory which held the field was the embolic theory, according to which cancer particles, passing along the lymphatics, got into the blood stream, and were carried all over the body, and gave rise to a crop of metastases. There was reason to believe that this theory, while containing an element of

truth, was on the whole erroneous, and he had attempted to bring forward evidence in favour of what he called the permeation theory. By permeation he meant the growth of cancer along the lymphatic vessels as a continuous line of cells, the cells growing just like tendril shoots by their own power of growth. The processes of dissemination were best seen in the parietes, where they were most easily watched. The main highway of dissemination was the lymphatic plexus. His view was that the growth extended centrifugally in all directions independent of the lymph stream, growing along the fine lymphatics of the plexus. They would notice that although the cancer cells might be embolised in an early stage along the trunk lymphatics to the axillary glands, yet he believed that those cancer cells were destroyed when, after passing through other glands they reached the blood-stream. That view had received support from the work of Schmidt, who described the destruction of cancer cells in the small arteries of the lungs. Although embolism could not carry cancer cells out of the area in which they originated, permeation was capable of doing so. The fact that permeation could cross the boundaries between adjoining lymphatic areas places the whole body at the mercy of the process if time enough was given. He showed a slide of a microscopic section of a permeated lymphatic taken from the deltoid region of the arm in a case of breast cancer. Turning to particular forms of growth, he directed attention to melanotic sarcoma considered as the type of a malignant growth disseminated by the blood-stream; but even in that form of growth, lymphatic permeation played a very important part. The black colour of the growth dispensed with any artificial stain in demonstrating permeation. The growth started from the chromatophores, branching connective tissue cells full of pigment. It really was a sarcoma, and not a carcinoma, as was thought a few years ago. He traced a melanotic sarcoma of the heel in a woman aged thirty-five. The primary growth had been excised, and did not return; but very soon a mass of glands developed in the inguinal region, and soon afterwards nodules made their appearance on the skin around the inguinal glands, and spread in every direction. One might consider the earliest secondary deposit in the inguinal region as a primary growth for the purpose of finding out how the dissemination occurred.

He took a strip down the thigh, and froze it, and cut it into slices, and obtained the specimen from which the slides were made. The larger nodules were on the end of the strip nearest the inguinal glands. They became smaller until finally, at the other end of the strip, they could only see a network of black lines. These were permeated lymphatics. At the furthest end of the strip there was no invasion of the blood vessels, but nearer the glands they found the veins invaded, and then the arteries. That invasion took place because the lymphatics ran in company with the veins, and when the lymphatics were infected, it was only a matter of time for the veins, and later the arteries, to be invaded. Slides were shown demonstrating the process of permeation; and in order to show that what he pointed out as lymphatics were really lymphatics, and not blood vessels, he showed a slide with a cord of black growth accompanying the artery and vein, the latter being perfectly normal, which showed that permeation of the lymphatics preceded the invasion of the veins and arteries. After a time the growth distended and ruptured the lymphatics, and the melanotic growth infiltrated the vein. When the vein was once invaded it was very likely that the lymphatic permeation in melanotic sarcoma had done its most important work, and that the growth then disseminated by the blood stream; but sometimes the distribution of the metastases showed that lymphatic permeation was the important agent practically all through in distributing the growth.

In breast cancer the clinical evidence of dissemination in the superficial layers was the presence of subcutaneous nodules. They used to be said to be due to embolism, but there was one fact which practically disposed of that contention—that was, that they always appeared from close to the primary growth, and spread from it centrifugally. That recalled the mode of spread of a tertiary syphilide, but it was entirely unlike the chance distribution of secondary deposits by a random process of embolism. A slide was exhibited which showed the nodules practically all included in a circle from the centre of distribution. Particles of clot containing septic organisms distributed by embolism were apt to find a lodgment in the arteries of the limbs, and if cancer were distributed by embolism it might be expected that secondary deposits would not infrequently be found in the distal por-

tions of the limbs. But the freedom of the limbs from secondary deposits was practically an invariable rule in breast cancer and in other forms. A slide showed that the secondary deposits near the primary growth were older than those further away, as indicated by their ulceration. The same rule applied to secondary deposits in bone: they never occurred below the elbow and knee. He had found only one exception, in which the knee was ankylosed, and the growth extended by continuity from the femur to the tibia. Such evidence was, however, only *primá facie*. The question could be settled only by sections taken in various directions radially from the primary growth. Several such slides were then exhibited. The deposits at the level of the nipple could be traced a long way down upon the deep fascia, much further than they could be traced on the skin. That was a strong argument against thinking that the cancer spread in the plane of the skin, and a strong argument in favour of removing rather less skin and considerably more deep fascia than formerly. He exhibited slides of the microscopic growing edge of carcinoma, which he did not think had been previously detected, situated in the region beyond the remotest visible nodules. It was purely microscopic, and in the region where it lay there was no interstitial invasion of the tissues by cancer cells. The microscopic growing edge of a breast cancer was situated in the deep fascia, simply because the easy highway of growth lay there. A slide was shown demonstrating permeation which spread against, as well as with, the lymph current, and then invaded the network of capillaries.

There was one fact in studying permeation which baffled him for a long time. Although he could find the permeated lymphatics at a long distance from the growth, yet at points nearer to the growth he could not find any such permeated lymphatics. He thought that was why the importance of permeation failed so long to be recognised. But he had been able to trace out the reason, and to demonstrate a series of changes by which a permeated lymphatic was ultimately changed into a fibrous cord containing no cancer cells. A slide was shown giving a cross section in the abdominal region in a case of breast cancer, close to the growing edge, almost the remotest deposit. The lymphatic was not distended. There were no inflammatory cells around it. The

small tributary lymphatic was also free from cells, and obviously the reason was because the cancer found it easier to grow along the main route rather than turn up the side stream for the time being. Another slide showed similar permeated lymphatics with a normal blood-vessel between, and no infiltration. As one passed up towards the primary growth, it was found that the permeated lymphatics looked larger, because they were being distended by the continued growth of the cells. Slides showed varying degrees of distention, until the lymphatics became so distended that the cancer cells found it difficult to nourish themselves. Coincident with the degeneration which took place, a few inflammatory round cells appeared in the neighbourhood of the permeated lymphatic. The distention could not go on indefinitely, and the mass of cells finally burst the lymphatic. Then the mass of inflammatory cells organised into fibrous tissue, and they saw a mass of degenerate cancer cells enclosed in a layer of newly organised fibrous tissue. Such tissue contracted down on the degenerate cancer cells, and finally squeezed them out of existence. Slides were shown of varying degrees of this process which he called perilymphatic fibrosis. It accounted for many things in connection with cancer—for the absence of permeated lymphatics from the region immediately round the primary growth, and also for the whole train of symptoms due to puckering around the original growth. It accounted for the contraction of the nipple, for the small size of the affected breast, and for the brawny arm of breast cancer which was due to the entire separation of the lymphatic system of the arm from the lymphatic system of the rest of the body. This could not be brought about merely by blocking the lymphatic trunks, for a collateral circulation would take place, but if in the whole district all the lymphatics had been turned into fibrous cords, the lymph could only return slowly by percolating the tissue spaces.

As to visceral dissemination, how did breast cancer reach the interior of the body? He thought it went by one of two routes, either by infiltrating the chest wall immediately under the growth or by infiltrating the epigastric parietes at a point immediately under the ensiform cartilage. That was suggested to him first, because there were so many cases in which after death secondary deposits were present

in the abdomen and not in the chest. That was a condition of affairs which the embolic theory failed to account for. It seemed to him that possibly the solution might be the direct infiltration of the parietes, and he was able to prove that such was really the case. Slides were shown demonstrating the various stages of this process. The extension of permeation in the facial plexus led to the formation of nodules upon the rectus sheath in the epigastric angle. Next the muscle itself and the fibrous tissue of the linea alba were infiltrated by the growth, which was thus carried to the subperitoneal fat and to the subperitoneal lymphatic plexus. Cancer cells then escaped into the general peritoneal cavity, and implanted themselves upon the liver, or falling into the pelvis there gave rise to secondary deposits.

With regard to stomach cancer, sometimes it invaded the parietes at the umbilicus. A slide shown was from the case of a young man in whom malignant disease was diagnosed because of the presence of three tiny nodules close to the umbilicus. In another slide the centrifugal spread was manifest, the assumption being that it spread, like breast cancer, chiefly by permeation. It was difficult in stomach cancer to trace permeation, but he had been able to overcome the difficulty in some degree by employing a stain called muci-carmin, which was a specific stain for mucus. A slide was shown which demonstrated cancer cells.

He should have liked to go into the question of the natural cure of cancer. He thought the most important point of his observations, from the practical point of view, was that they showed the presence in cancer of processes of cure going on along with the advance of the disease; and the same tendency of cancer to spontaneous cure in a centrifugal manner could be traced in the primary growth, which, after ulcerating, was sometimes replaced by a mere scar. But time failed him to go into this subject.

PROFESSOR O'SULLIVAN moved a vote of thanks to the lecturer, expressing the obligation of the Section for a clear statement of views illustrated by beautiful examples. He thought the doctrine of the permeating spread of cancer was not a very recent one. It was held by Weigert, who had said that cancer went by direct extension along the lymphatic paths. What had been shown, however, as to the spread of melanotic sarcoma was entirely new to him. One

of the most interesting specimens was, perhaps, the one showing the sarcoma filling the lymphatics, the artery and vein being unaffected. Mr. Handley had arrived at a very interesting conclusion relating to the way in which a cancer was disposed of in the immediate neighbourhood of the primary growth, which had almost a terrible interest both to the surgeon and also to the histologist, who had to discover if the operation had been carried sufficiently far. It suggested that it would be necessary for them, instead of examining for traces of cancer on the outskirts of the portion of tissue removed, to see whether there were traces of fibrosis of the lymphatics, which would be a much more difficult thing to be sure of. What they had been told threw a good deal of light on the question of what was sometimes called fibroid change in the wall of the stomach. Views had been put forward to the effect that a good many of those pyloric obstructions were due to inflammation, and had nothing to do with cancer. His experience had gone the other way. One often had to search a long time before finding any cancer cells at all in scirrhus cancer of the stomach. If they found such difficulty, was there any reason why they should not find it impossible? The fibrous portions of the stomach wall might be places where all the cancer had disappeared by the process described.

DR. WALTER G. SMITH, in seconding the vote of thanks, said a physician was necessarily, by his vocation, less concerned with the cancer problem than the surgeon. The physician's cases fell into two groups—those in which the disease could not be got at and was inoperable, and in which the physician's duty was little more than a meditation on death; and those in which the cancer might be judged possibly suitable for operation, in which case the physician had to mark down the game to hand it over to the surgical sportsman. When they considered the twin scourges of humanity, tuberculosis and cancer, it seemed that at present in their investigation they had to rely on the microscope and the experimental inoculation of animals. He was afraid they could not look to the allied science of chemistry to throw any light on either problem. So far as he knew, no chemical substance had been isolated from, or detected in, malignant growth, yet malignant growths carried their chemistry to distant parts of the body. Mr. Handley's

observations appeared to him to be, if not inconsistent with, at least to throw great difficulties in the way of regarding cancer as a disease due to a specific organism. It had been frequently sought for and ascribed to animal and vegetable origin; and there was another possibility, that in that case, and also in yellow fever, the parasites were ultra-microscopic, and so eluded research. It was a great pleasure to him to second the vote of thanks to Mr. Handley, for he had not only given them an intellectual treat, but had lit a lamp which had thrown light on some of the dark corners of one of the gravest problems of pathology.

PROFESSOR E. H. TAYLOR supported the motion. He had followed Mr. Handley's work for some years. Two years ago he had met him in Brussels at the Surgical Congress, where his views were warmly accepted by the greatest surgeons in Germany and on the Continent generally. From the surgical standpoint he thought that the views so forcibly put forward by Mr. Handley had done a lot of good. He thought there was no operation for cancer which had shown such a definite advance as that for breast cancer. Mr. Handley's name was associated with others in the evolution of the operation. For some years he had practised the operation spoken of by Mr. Handley, which aimed at removing the disease widely. No operation was thorough unless it aimed at removing the deep fascia.

PROFESSOR METTAM also supported the vote of thanks. He said his experience of cancer was limited to domesticated animals. The movement of the cancerous growth against the lymph stream was of great interest to him personally, partly because he was very sceptical as to the correctness of the present description of the lymphatic circulation. His impression had always been that the new growth was centrifugal, and the ultimate destination, if the animal lived long enough, was the blood stream. They were informed that the tubercle bacillus was able to move against the lymph stream. In tuberculosis of the udder of cattle, one way in which they could explain infection was that the virus had moved against the lymph current. It was conceivable that the cancer grew along the lymphatics, but he did not quite follow how the bud was cut off from the centre. The picture indicated that as they approached the primary focus there was an infiltration of round cells, fibroblasts which

gave rise to new granulated tissue. He accepted the dictum that the irritation set up eventually formed tissue which cut off the new growth. This showed that the new growth was not quite independent of the primary growth. In his own observations he had not observed the dissemination of the secondary new growth in the subcutaneous tissue of the lower animals. In cases of carcinoma of the liver, he would have liked to hear if the secondary new growth followed the blood stream or the lymphatic stream of the liver. The latter seemed to journey backwards. He thought some one should look into the matter of the lymphatic circulation.

The vote of thanks was passed by acclamation.

MR. HANDLEY, in acknowledging the motion, said nothing could illustrate better the complexity of the subject of cancer than the speeches which had followed his remarks. Each approached it from an entirely different point of view, and all were interesting and important. One person could only hope to tackle a portion of the problem. He had suspected that the fibrotic lumps in the stomach spoken of by Dr. O'Sullivan were extinct carcinomata, and Dr. O'Sullivan's observations tended to confirm his suspicion. It looked as if cancer were not quite the incurable disease that it was thought to be. It looked as if there might be abortive cases of cancer which never obtained the clinical dignity of fully developed disease. He wished to disclaim having discovered the process of permeation. It had been known for a long time; but he was responsible for the name. It used to be called lymphangitis carcinomatosa, and was regarded as a pathological curiosity. The reason why its importance was not recognised was, he thought, that the fibrotic process had not been described or detected. Until that process was detected it was impossible by means of permeation to explain dissemination, because permeated lymphatics were absent from the region just round the primary growth, where it would seem they ought to be specially present. He was specially pleased to hear of Mr. Taylor's satisfaction with his operation for breast cancer. Referring to Professor Mettam's remarks, he did not think that one could transfer experience in human cancer to that in animals, or indeed *vice versâ*. There seemed to be great differences between the two. He was not an expert on the varieties of cells found in the blood and lymph, but his colleague, Professor

Bonney, had confirmed his work, and he could appeal to him when he spoke of the cells as fibroblast. Professor Mettam had not observed such extensive subcutaneous deposit as he had; but, of course, in man such extensive deposits were rare, and he showed the cases which illustrated the spread more strikingly than the commoner cases of limited dissemination. The subject of lymphatic anatomy was a very important one, and he believed there were considerable discoveries to be made by the anatomist who devoted himself to it. He had looked out a volume of anatomy of 1,200 pages, and the amount devoted to lymphatic anatomy—20 pages—hardly showed its relative importance. He thanked them for their kind reception. It had been a great privilege to address the Section.

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#### SECTION OF SURGERY.

President—R. H. WOODS, P.R.C.S.I.

Sectional Secretary—A. J. BLAYNEY, F.R.C.S.I.

*Friday, January 20, 1911.*

MR. SETON PRINGLE in the Chair.

MR. W. S. HAUGHTON read a paper on "Two Unusual Gall-Bladder Cases—(a) Foreign Body. (b) Typhoid Carrier."

(a) The first case had attacks of well-marked biliary colic during the two previous years. The intervals between these were marked by severe gastric disturbance and pain. Operation revealed a very small, thickened gall-bladder, embedded in dense mass of adhesions involving liver and stomach. A thick ring of fleshy adhesion made it impossible to completely remove the gall-bladder without stomach resection. The gall-bladder contained two small calculi, and a "bristle" half an inch long with a piece of thread tightly rolled round one end. The "bristle" resembled one from a tooth-brush, and it was suggested that it entered the gall-bladder by ulceration through the stomach wall. (b) Mr. Haughton's second case had no definite history of enteric fever. Her symptoms for six years previously suggested intermittent attacks of partial intestinal obstruction. A tumour was felt in the right side of the abdomen, tense, smooth, pendulous, and movable in transverse direction at the level of the

umbilicus. Operation revealed a large pear-shaped gall-bladder with a long pedicle formed by the cystic duct. Its walls were over a quarter of an inch thick, and it contained eighteen calculi and a large quantity of white, milky fluid, which was proved to contain a pure culture of "typhoid bacilli." The blood of this patient possessed unusually high agglutinating power. The gall-bladder was removed. Both patients have made a complete recovery.

DR. CROFTON said that a pure culture of the typhoid bacillus was obtained from the gall-bladder. The patient's blood, even when diluted to 1 in 500, agglutinated typhoid bacilli. The patient had no history of having had any typhoid, but the fact that she had an anomalous illness with a high temperature, and had come from Cairo, was very suspicious, because Cairo is a hot-bed of typhoid fever. There was no history that she had given typhoid to any one.

THE CHAIRMAN (Mr. Pringle) inquired from the members had they found the area of tenderness described by Boas behind, opposite the tenth and eleventh dorsal spines on the right side. Boas states, with some authority, that in all cases of gall-stones we get this area of tenderness. He himself had constantly tried for it in all cases, and had only found it once. In such a case as this, where in all probability the gall-bladder would have to be removed in the end, would it not be safer to remove the gall-bladder unopened? It would be simpler, and lessen the risk of sepsis. As regards the second case of typhoid carrier—from the description of the tumour it would appear that the cystic duct was obstructed, so it is quite possible that this woman was not a source of infection, as one might at first imagine. He did not see any reason why one could not get infection of the gall-bladder without typhoid fever, as the infection might easily occur through the mouth.

DR. STOKES said he would like to ask two questions. First, why there was such difficulty in passing a probe down the common bile duct in the dissecting room, considering that it could be done with ease in the living. The second question was, can the typhoid bacillus live and multiply in a patient who has serum of marked agglutinative power?

MR. BLAYNEY said in reference to the question of tenderness he had examined for this in a number of cases and

had never been able to get it. He did not think it could be relied upon from a diagnostic point of view. As regards the operation of cholecystectomy he said in most cases he had removed the gall-bladder. The mucous membrane is always in a state of disease, and, as the operation is a safe one, he thought, in order to prevent recurrence, it was better to remove the gall-bladder. He had often experienced a difficulty in passing a probe from the gall-bladder into the cystic duct in the living. He thought the difficulty was due to the valve-like arrangement of the mucous membrane. It seemed from the high agglutinating power of her serum that the patient had absorbed a considerable amount of typhoid poison. It has been shown experimentally that in order to produce gall-stones the bacilli must be attenuated, otherwise they produce an attack of cholecystitis and not gall-stones. If this be so one would not expect such a high agglutinating power to be produced by absorption from the gall-bladder alone. Consequently, he agreed with Dr. Crofton that the patient probably had an attack of typhoid fever beforehand.

DR. KIRKPATRICK said a typhoid carrier is a person who excretes typhoid bacilli, and there is no evidence that this patient did excrete these typhoid bacilli. In view of the fact that the bacillus was never discovered in the stools he thought it very doubtful whether, without further elucidation, Dr. Haughton should describe this patient as a typhoid carrier.

DR. PEARSON said he thought, with regard to the removal or not, the points which should be borne in mind were:— (1) If we do not remove the gall-bladder, is it a source of danger to the patient? (2) Is there anything to be gained by leaving it behind? Is it a useless organ or has it any function? The gall-bladder which is chronically inflamed is undoubtedly liable to develop cancerous changes. Therefore, a contracted gall-bladder should be removed: it should also be removed if there is a stricture of the cystic duct. There is no evidence that the gall-bladder has some function in addition to acting as a reservoir for bile. Opie injected sterilised bile into the pancreatic duct in the dog which produced an attack of acute pancreatitis. He then took a mixture of pure bile and mucin and injected this mixture into the pancreatic duct, and he found acute

pancreatitis did not occur. He suggested that mucus when added to the bile rendered the latter innocuous. In cases of cholecystitis, where the changes are not very marked, one can hope that by drainage alone the mucous membrane of the gall-bladder will return to its normal condition, and one might in that case leave the gall-bladder behind. From statistics it appears that cholecystostomy is less serious than cholecystectomy, so that we should always in suitable cases leave the gall-bladder rather than remove it.

MR. GUNN said he was not at all certain that it was a sound thing to remove the gall-bladder in every case. He had a very unpleasant experience about eighteen months ago, when he operated on a gentleman with a diseased-looking gall-bladder containing calculi. He removed the gall-bladder because it seemed very diseased. A fistula formed and persisted for a long time, but closed eventually. Just a year afterwards his symptoms returned, and he again got a good deal of trouble and a good deal of jaundice. His abdomen was re-opened and it was found that the cystic duct was shrivelled up and atrophied. The communication between the hepatic ducts and the duodenum was reduced to a very narrow track. He regretted very much that the gall-bladder was removed because an anastomosis between it and the duodenum could have been made. He said he would like to ask Dr. Haughton whether he considers it safe to entirely close the abdomen and not leave in a drain.

MR. STONEY said that with regard to the passing of a probe he quite agreed with Mr. Stokes that there is a great difficulty in the way. In the most cases he had operated on there had been adhesions present which probably have increased the difficulty. Even in cases where there were no adhesions he had also encountered a difficulty in passing probe from the gall-bladder to the duodenum. He thought it was due to the irregular and tortuous course of the cystic duct into the common bile duct. When the gall-bladder appears more or less normal it is better to leave it, especially in younger patients. In cases where there are well-marked changes, either thickening of the wall of the gall-bladder or any tendency to destruction of the cystic duct, or in ulceration of the entire gall-bladder, it should be removed. Statistics are not to be relied upon, as cholecystostomy is

done in the simpler cases, whilst cholecystectomy is adopted in the severer cases where there is sepsis, where the organs are considerably diseased, where there is malignant disease, or where the cystic or common bile ducts have to be opened. So, as we cannot rely upon statistics it must be admitted that cholecystectomy is as free from mortality as cholecystostomy.

MR. HAUGHTON said he quite agreed that the removal of the unopened gall-bladder would have been a safer course than the one he adopted. Mr. Stokes had asked the reason of the difficulty in passing a probe. He thought it was due to the tone of the muscle, which disappears after death. He thought that the gall-bladder should be removed where there is any definite evidence of change rather than leave it there as a future source of malignancy. With regard to Mr. Gunn's question, he thought that in the vast majority of cases it was inadvisable to close the abdomen without drainage.

MR. CROFTON said that he had no doubt whatever that typhoid bacilli could not live in the blood stream or in the tissue fluids of this patient. Those in the gall-bladder were in a position that was cut off from the blood stream owing to the thickening and infiltration of the walls, and so antibodies could not soak through. Another point is that it is quite possible, owing to their position of partial protection, that these typhoid bacilli have developed a strain which is more or less resistant. As to the question whether the patient had typhoid fever, she certainly came from a place where this fever was very prevalent. As regards the question of removal of gall-bladders, he thought many of them might be saved by vaccine therapy, and that if the microbe could be discovered many of the gall-bladders would be able to return to their normal condition. It is very difficult to immunise a patient and to destroy the living typhoid bacilli in the typhoid carrier. He knew of only one successful case which had been reported. There was one patient in whom he was able to increase her agglutinative power very much, but she was still excreting typhoid bacilli in her urine.

#### *Congenital Fistulæ.*

MR. BOYD BARRETT read a paper on "Congenital Fistulæ." He confined his remarks to fistulæ of the umbilicus (intestinal and urinary), fistulæ of the external ear, and pre-

auricular area and para-coccygeal fistulæ. Conditions necessitating surgical interference were mentioned and laparotomy was suggested in all cases of umbilical fistulæ where the possibility of adherence of the ileum to the umbilicus through a Meckel's diverticulum existed. [Mr. Boyd Barrett's paper is published in full at page 179.]

Mr. STONEY said there were only two cases of which he could speak from experience. The first was one commonly found in the sacral region occurring in a middle-aged man. He told him he had an ischio-rectal abscess, which had been opened on two separate occasions. When he examined it the first thing that struck him was that it was not an ischio-rectal abscess at all. In the middle line there was a very small depression. He was able to pass a probe through this small opening underneath the skin for a distance of three-quarters of an inch, but not quite as far as the abscess cavity. At the operation he opened the abscess, scraped it out, and introduced a probe again into the depression and found with a little manipulation he was able to pass it into the abscess cavity. He dissected it out. He found it was lined by skin. He came to the conclusion that the abscess was due to an infection which had travelled up from the anus along this fistula to the region of the sacrum. The second case was nearly exactly the same. The first case was operated on three years ago, and there was no recurrence of abscess formation. He had seen one other case of fistula in the middle of the lip of a child of five years of age, which passed into the mucous membrane of the nose. It is said that the central portion of the lip develops from a median nasal process, but apparently this consists of two small projections, which early in life became fused again, so that a median hare lip is the rarest form of deformity in the region of the upper lip.

Mr. GUNN said he did not quite agree with Mr. Boyd Barrett that it was easy to distinguish between umbilical fistula and adenoma, as they both present very similar appearances. In a case which he had at the Adelaide Hospital the mother of the child gave a very definite history of a quantity of clear fluid coming away from a protrusion in the abdominal wall, and he thought he was dealing with a case of urinary fistula. He got the nurse to collect some of the fluid from this small protrusion. As

far as could be determined it was a clear mucoid fluid such as Mr. Boyd Barrett described. The case was treated by cauterisation, and he regretted he did not know what became of the child. Although there was a clear fluid coming from the protrusion he did not think that he was dealing with a case of urinary fistula. There were two cases in the Adelaide Hospital of abscess forming over the sacro-coccygeal region. Every three or four months there is pain, and pus is passed in the motions. These symptoms subsided for a while, and again the trouble returned.

MR. STOKES mentioned a case he saw of what he believed to be a thyro-glossal duct tumour with a sinus just above the sternum. The sinus was split up and treated, but recurred. It was scraped, and again recurred.

MR. PEARSON thought the diagnosis could often be made from the characteristic position. With regard to urachal fistulæ discharging at the umbilicus one cannot be too certain of the diagnosis, because we must remember we may have complete as well as incomplete fistulæ. He had a case of incomplete fistula which at first looked like a little granuloma, but it had been present since birth, and he succeeded in finding a small opening in the centre of it which extended down in the middle line towards the symphysis and stopped short. He had tried to treat the case by cauterisation, using nitrate of silver, and he thought he had succeeded, but the case continued to discharge, and he was afraid that cauterisation would not be successful. With regard to the other conditions one may get at the umbilicus he might mention vitelline ducts and cysts. There are some cases which show typical gastric mucous membrane, and he thought it impossible to explain how it came to be displaced into a position where one gets remnants of mid gut. With regard to the case mentioned by Mr. Stoney he was sorry he did not mention what kind of a case he thought it was. He thought if it was lined by compound scaly epithelium it might be one from the neurenteric canal. In reference to the fistula of the upper lip the usual explanation was that the median nasal process stops short, and that the median hare lip is due to the failure of union between the maxillary processes.

THE CHAIRMAN thought that where the diagnosis lies between patent urachus and intestinal fistula it might be of

use to give the patient methylene blue and see if the fluid escaping became coloured.

Mr. BOYD BARRETT referred to the two coccygeal cases mentioned by Mr. Stoney which were opened for abscesses, and he considered it quite possible that they were fistulæ. He had seen several cases of coccygeal fistulæ, but never any deep ones. He thought it a great pity that Mr. Gunn had lost sight of his case, which was probably an intestinal fistula. If ever he does happen to meet the patient again he would consider a laparotomy justifiable in her case. Mr. Stokes' case with the sinus opening in the middle line of the neck he believed to be extremely rare. They are supposed to be due to the thyro-glossal duct. Mr. Pearson had failed to cure his fistula of the umbilicus by cauterisation. He thought this was never successful. It nearly always recurred after treatment by cauterisation, which means that the lips of the duct become adherent, and a cyst is generally formed where the lining membrane is not destroyed. The only result of this treatment is the formation of cysts. The giving of methylene blue would be an aid if the urine was discharged, but if the urachus is closed at the bladder methylene blue would be of no use. He thought that where there was a probability of a fistula being connected with the ileum a laparotomy would be justifiable.

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#### INTERNATIONAL EXHIBITION, ANTWERP, 1911.

THE announcement is made that from September to November of the present year an International Exhibition of Foods, Brewing, Wines and Liqueurs, and of the industries related thereto, will be held in connection with a Section of Medico-Pharmaceutical Hygiene in the sumptuous buildings of the Salles des Fêtes and the Exhibition of the City of Antwerp (Place de Meir). This Exhibition, organised with the co-operation of the League "Anvers en Avant," under the distinguished patronage, as Honorary President, of H.R.H. the Countess of Flanders, and, as Honorary Member, of M. Jean Devos, Burgomaster of the City of Antwerp, may already be spoken of as an assured and brilliant success.

# SANITARY AND METEOROLOGICAL NOTES.

## VITAL STATISTICS.

*For four weeks ending Saturday, January 28, 1911.*

### IRELAND.

THE average annual death-rate represented by the deaths—exclusive of deaths of persons admitted into public institutions from without the respective districts—registered in the week ended January 28, 1911, in the Dublin Registration Area and the twenty-one principal provincial Urban Districts of Ireland was 21.3 per 1,000 of their aggregate population, which for the purposes of these returns is estimated at 1,163,596. The deaths registered in each of the four weeks ended Saturday, January 28, and during the whole of that period in the several districts, alphabetically arranged, correspond to the following annual rates per 1,000. In some cases, owing to deaths not having been registered within the week in which they occurred, the rates do not fairly represent the weekly mortality:—

TOWNS, &c.	Week ending				Average Rate for 4 weeks	TOWNS, &c.	Week ending				Average Rate for 4 weeks
	Jan. 7	Jan. 14	Jan. 21	Jan. 28			Jan. 7	Jan. 14	Jan. 21	Jan. 28	
22 Town Districts	19.4	19.9	19.3	21.3	20.0	Lisburn -	9.1	4.5	27.3	27.3	17.1
Armagh -	20.0	13.7	6.9	48.1	22.3	Londonderry	24.9	15.4	23.8	22.6	21.7
Ballymena	14.4	4.8	23.9	23.9	16.8	Lurgan -	35.4	26.6	13.3	17.7	23.2
Belfast -	16.0	19.8	15.4	15.4	16.7	Newry -	4.2	8.4	25.2	16.8	13.7
Clonmel -	—	5.1	—	15.4	5.1	Newtownards	17.2	28.6	—	34.3	20.0
Cork -	24.0	20.5	24.7	25.3	23.6	Portadown	36.2	15.5	25.8	20.7	24.5
Drogheda -	16.3	20.4	24.5	16.3	19.4	Queenstown	13.2	33.0	19.8	19.8	21.4
Dublin (Reg. Area)	21.5	21.4	23.4	27.5	23.4	Sligo -	28.8	24.0	14.4	—	16.8
Dundalk -	43.9	12.0	12.0	—	17.0	Tralee -	15.9	21.1	—	42.3	19.8
Galway -	23.3	27.2	3.9	3.9	14.6	Waterford	13.6	27.3	11.7	11.7	16.1
Kilkenny -	34.3	24.6	34.3	29.5	30.7	Wexford -	23.3	9.3	14.0	23.3	17.5
Limerick -	13.7	15.0	20.5	20.5	17.4						

The deaths (excluding those of persons admitted into public institutions from without the respective districts) from certain epidemic diseases registered in the 22 districts during the week ended Saturday, January 28, 1911, were equal to an annual rate of 1.3 per 1,000, the rates varying from 0.0 in seventeen of the districts to 5.7 in Newtownards, the 6 deaths from all causes for that district including one from whooping-cough. Among the 118 deaths from all causes registered in Belfast are 2 from diphtheria and one from whooping-cough. Of the 19 deaths from all causes registered in Londonderry 2 are from whooping-cough, and included in the 37 deaths from all causes registered in Cork are 4 from whooping-cough.

#### DUBLIN REGISTRATION AREA.

The Dublin Registration Area consists of the City of Dublin as extended by the Dublin Corporation Act, 1900, together with the Urban Districts of Rathmines, Pembroke, Blackrock, and Kingstown. The population of this area is 407,057, that of the City being 313,526, Rathmines 37,528, Pembroke 29,368, Blackrock 9,013, and Kingstown 17,622.

In the Dublin Registration Area the births registered during the week ended Saturday, January 28, 1911, amounted to 232—110 boys and 122 girls; and the deaths to 228—106 males and 122 females.

#### DEATHS.

Omitting the deaths (numbering 13) of persons admitted into public institutions from localities outside the Area, the annual rate of mortality was 27.5 per 1,000. During the four weeks ending with Saturday, January 28, the death-rate averaged 23.5, and was 1.9 below the mean rate for the corresponding portions of the ten years 1901–1910.

The total deaths (215) included 2 deaths from measles (omitting the death from measles of a person from a locality outside the Area), 10 from whooping-cough, one death from scarlet fever, 2 from enteric fever, one from diphtheria, and 4 deaths of children under 2 years of age from diarrhœa. Influenza caused 4 deaths. In each of the three preceding weeks deaths from measles had been 4, 3, and 6; deaths of children under 2 years of age from diarrhœa and enteritis had been 3, 4, and 4; deaths from influenza had been 0, one, and one; deaths from scarlet fever had been 7, 0,

and 0 ; deaths from enteric fever had been 0, one, and 0 ; deaths from diphtheria had been one, 2, and 4 ; and deaths from whooping-cough had been 6, 5, and 6, respectively.

Of 17 deaths from pneumonia (all forms) there were 7 deaths from broncho-pneumonia, one death from lobar pneumonia, and there were 9 deaths from *pneumonia* (not defined).

The deaths (35) from all forms of tuberculous disease included 28 from pulmonary tuberculosis, 2 from tubercular meningitis, 3 from abdominal tuberculosis, one from tuberculosis of the vertebral column, and one death from disseminated tuberculosis. Deaths from all forms of tuberculous disease in the three preceding weeks had been 25, 25, and 36, respectively.

Prematurity was the cause of the deaths of 4 infants.

Of 29 deaths attributed to diseases of the brain and nervous system, 2 were from meningitis and 3 from *convulsions* ; of the latter 2 were under one year of age and one was aged one year.

Diseases of the heart and blood-vessels caused 25 deaths, and bronchitis caused 39 deaths.

Of 3 deaths caused by accident or negligence, one was caused by a vehicle, and one was that of a girl aged 11 years by scalds.

One death by suicide was recorded.

In seven instances the cause of death was "uncertified," there having been no medical attendant during the last illness. These cases include the deaths of 4 children under 5 years of age (including 2 infants under one year old), and the death of one person aged 78 years.

Fifty-nine of the persons whose deaths were registered during the week were under 5 years of age (31 being infants under one year, of whom 7 were under one month old), and 60 were aged 65 years and upwards, including 45 persons aged 70 and upwards ; among the latter were 26 aged 75 and upwards, of whom 6 were nonagenarians (one male and 5 females), who were stated to have been aged 90, and 90, 91, 92, 95, and 96 years, respectively.

The Registrar-General points out that the names of the cause of death printed above in italics should be avoided whenever possible in Medical Certificates of the Cause of Death.

## STATE OF INFECTIOUS DISEASE IN THE DUBLIN REGISTRATION AREA AND IN BELFAST.

The usual returns of the number of cases of infectious diseases notified under the "Infectious Diseases (Notification) Act, 1889,"

and the "Tuberculosis Prevention (Ireland) Act, 1908," as set forth in the following table, have been furnished by Sir Charles A. Cameron, C.B., M.D., Medical Superintendent Officer of Health for the City of Dublin; Mr. Fawcett, Executive Sanitary Officer for Rathmines and Rathgar Urban District; Mr. Manly, Executive Sanitary Officer for Pembroke Urban District; Mr. Heron, Executive Sanitary Officer for Blackrock Urban District; the Executive Sanitary Officer for Kingstown Urban District; and Dr. Bailie, Medical Superintendent Officer of Health for the City of Belfast.

TABLE SHOWING THE NUMBER OF CASES OF INFECTIOUS DISEASES notified in the Dublin Registration Area (viz.—the City of Dublin and the Urban Districts of Rathmines and Rathgar, Pembroke, Blackrock, and Kingstown), and in the City of Belfast, during the week ended January 28, 1911, and during each of the preceding three weeks. An asterisk (\*) denotes that the disease in question is not notifiable in the District.

CITIES AND URBAN DISTRICTS	Week ending	Small-pox	Measles	Rubella, or Epidemic Rose Rash	Scarlet Fever	Typhus	Relapsing Fever	Diphtheria	Membranous Croup	Pyrexia (origin uncertain) <sup>a</sup>	Enteric or Typhoid Fever	Erysipelas	Puerperal Fever	Whooping-cough	Cerebro-spinal Fever	Tubercular Phthisis ( <i>Phthisis</i> )	Total
City of Dublin	Jan. 7	-	•	•	8	-	-	18	-	1	5	4	-	•	-	12	48
	Jan. 14	-	•	•	12	-	-	25	-	-	6	-	-	•	-	10	53
	Jan. 21	-	•	•	20	1	-	16	-	12	10	8	-	•	-	11	68
	Jan. 28	-	•	•	15	-	-	10	-	1	23	10	-	•	-	10	69
Rathmines and Rathgar Urban District	Jan. 7	-	•	•	1	-	-	4	-	-	2	-	-	•	•	-	7
	Jan. 14	-	•	•	1	-	-	2	-	-	-	1	-	•	•	•	4
	Jan. 21	-	•	•	-	-	-	3	-	-	1	12	-	•	•	•	6
	Jan. 28	-	•	•	2	-	-	1	-	-	-	12	-	•	•	•	5
Pembroke Urban District	Jan. 7	-	2	-	-	-	-	-	-	-	-	-	-	12	-	-	4
	Jan. 14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Jan. 21	1	1	-	1	-	-	1	-	-	-	-	-	4	-	1	9
	Jan. 28	-	4	-	-	-	-	-	-	1	-	-	-	1	-	-	6
Blackrock Urban District	Jan. 7	-	•	•	-	-	-	1	-	-	-	-	-	•	-	•	1
	Jan. 14	-	•	•	-	-	-	-	-	-	-	-	-	•	-	•	-
	Jan. 21	-	•	•	-	-	-	1	-	-	-	-	-	•	-	•	1
	Jan. 28	-	•	•	-	-	-	-	-	-	-	-	-	•	-	•	-
Kingstown Urban District	Jan. 7	-	•	•	-	-	-	-	-	-	-	-	-	•	•	-	-
	Jan. 14	-	•	•	-	-	-	-	-	-	-	-	-	•	•	-	-
	Jan. 21	-	•	•	-	-	-	-	-	-	-	-	-	•	•	-	-
	Jan. 28	-	•	•	-	-	-	-	-	-	-	-	-	•	•	-	-
City of Belfast	Jan. 7	-	•	•	27	1	-	13	-	-	-	3	-	•	•	14	58
	Jan. 14	-	•	•	18	-	-	6	1	-	-	4	-	•	•	17	46
	Jan. 21	-	•	•	18	-	-	8	1	1	12	7	-	•	•	12	49
	Jan. 28	-	•	•	24	-	-	8	1	-	-	7	-	•	•	22	62

<sup>a</sup> Continued Fever.

### CASES OF INFECTIOUS DISEASES UNDER TREATMENT IN DUBLIN HOSPITALS.

During the week ended January 28, 1911, 8 cases of measles were admitted to hospital, 5 were discharged, there was one death, and 25 cases remained under treatment at its close.

One case of small-pox remained under treatment in hospital at the close of the week.

Fourteen cases of scarlet fever were admitted to hospital, 11 were discharged, there was one death, and 93 cases remained under treatment at the close of the week. This number is exclusive of 16 convalescents from the disease under treatment in Beneavin, Glasnevin, the Convalescent Home of Cork Street Fever Hospital. At the close of the 3 preceding weeks the cases in hospital had been 96, 89, and 91 respectively.

One case of typhus remained under treatment in hospital at the end of the week.

Twelve cases of diphtheria were admitted to hospital, 13 were discharged, and there were 2 deaths. The cases in hospital, which, at the close of the 3 preceding weeks had numbered 66, 69, and 87, respectively, were 84 at the close of the week under notice.

Twenty-four cases of enteric fever were admitted to hospital during the week, 10 were discharged, there was one death, and 67 cases remained under treatment in hospital at the close of the week, the respective numbers in hospital at the close of the three preceding weeks being 42, 41, and 54.

In addition to the above-named diseases, 9 cases of pneumonia were admitted to hospital, 5 were discharged, there was one death, and 25 cases remained under treatment at the end of the week.

### ENGLAND AND SCOTLAND.

The mortality in the week ended Saturday, January 28, in 77 large English towns, including London (in which the rate was 16.3), was equal to an average annual death-rate of 16.1 per 1,000 persons living. The average rate for 8 principal towns of Scotland was 15.7 per 1,000, the rate for Glasgow being 15.9, and for Edinburgh 16.0.

### INFECTIOUS DISEASE IN EDINBURGH.

The Registrar-General has been favoured by A. Maxwell Williamson, M.D., B.Sc., Medical Officer of Health for Edinburgh, with a copy of his Return of Infectious Diseases notified during

the week ended January 28. From this report it appears that of a total of 79 cases notified, 30 were of scarlet fever, 16 of phthisis, 25 of diphtheria, 7 of erysipelas, and one was of enteric fever.

Among the 440 cases of infectious diseases in hospital at the close of the week were 213 cases of scarlet fever, 30 of measles, 59 of phthisis, 15 of whooping-cough, 93 of diphtheria, 7 of enteric fever, 16 of erysipelas, one of chicken-pox, and one of puerperal fever.

#### METEOROLOGY.

*Abstract of Observations made in the City of Dublin, Lat. 53° 20' N., Long. 6° 15' W., for the Month of January, 1911.*

Mean Height of Barometer,	-	-	-	30.292 inches.
Maximal Height of Barometer (18th, 9 a.m.),	-	-	-	30.748 „
Minimal Height of Barometer (11th, 3 30 p.m.),	-	-	-	29.540 „
Mean Dry-bulb Temperature,	-	-	-	41.1°.
Mean Wet-bulb Temperature,	-	-	-	39.2°.
Mean Dew-point Temperature,	-	-	-	36.8°.
Mean Elastic Force (Tension) of Aqueous Vapour,	-	-	-	.222 inch.
Mean Humidity,	-	-	-	85.2 per cent.
Highest Temperature in Shade (on 25th),	-	-	-	55.4°.
Lowest Temperature in Shade (on 13th),	-	-	-	28.9°.
Lowest Temperature on Grass (Radiation) (13th),	-	-	-	26.8°.
Mean Amount of Cloud,	-	-	-	63.6 per cent.
Rainfall (on 10 days),	-	-	-	.638 inch.
Greatest Daily Rainfall (on 5th),	-	-	-	.186 inch.
General Directions of Wind,	-	-	-	S.W., W.

#### Remarks.

A generally fine, dry, but cloudy month, with an average temperature and very high mean atmospheric pressure connected with an anticyclonic tendency over Central Europe and France. On the other hand, cyclonic conditions were dominant in Icelandic and Arctic regions, so that a mild S.W. air-current often passed across Ireland, Scotland, and Norway, whereas calms or easterly winds prevailed in Central and Southern Europe. On the morning of the 6th a marked V-shaped depression crossed Ireland from W. to E. in the periphery of an unusually deep cyclonic system, in the centre of which the barometer fell to 28.12 inches at Seydisfjörd

on the east coast of Iceland. At the same time atmospheric pressure exceeded 31 inches in Russia. Again on the 11th, a rather deep depression passed across Scotland, causing heavy rain in that country, and strong and squally S.W. winds over the United Kingdom in general. After the last-named date the baric oscillations, while many, were not extreme, but a warm S.W. current passed over the West of Europe between the 24th and the 28th—at Killarney the thermometer rose to  $59^{\circ}$  on the 25th, and next day  $56^{\circ}$  was recorded at Geldeston, Norfolk. Except in the north and west of Scotland scarcely any rain fell in this mild period. With the spreading of the Continental anticyclone to England, temperature fell on the 28th in that country, the change to colder weather extending to Ireland and Scotland a day or two later, so that the month closed with a tolerably general frost.

In Dublin the arithmetical mean temperature ( $41.4^{\circ}$ ) was below the average ( $41.7^{\circ}$ ) by 0.3 of a degree; the mean dry-bulb readings at 9 a.m. and 9 p.m. were  $41.1^{\circ}$ . In the forty-six years ending with 1911, January was coldest in 1881 (M. T. =  $33.2^{\circ}$ ), and warmest in 1898 (M. T. =  $47.8^{\circ}$ ). In 1910 the M. T. was  $40.9^{\circ}$ .

The mean height of the barometer was 30.292 inches, or 0.418 inch above the corrected average value for January—namely, 29.874 inches. The mercury rose to 30.718 inches at 9 a.m. of the 18th, and fell to 29.540 inches at 3.30 p.m. of the 11th. The observed range of atmospheric pressure was, therefore, 1.208 inches.

The mean temperature deduced from daily readings of the dry-bulb thermometer at 9 a.m. and 9 p.m. was  $41.1^{\circ}$ , or  $0.9^{\circ}$  above the value for January, 1910. Using the formula, *Mean Temp.* = *Min.* + (*Max.* — *Min.*  $\times .52$ ), the M. T. becomes  $41.6^{\circ}$ , compared with a thirty-five years' (1871–1905) average of  $41.9^{\circ}$ . The arithmetical mean of the maximal and minimal readings was  $41.4^{\circ}$ , compared with a thirty-five years' average of  $41.7^{\circ}$ . On the 25th the thermometer in the screen rose to  $55.4^{\circ}$ —wind, S.W.; on the 13th the temperature fell to  $28.9^{\circ}$ —wind, W.N.W. The minimum on the grass was  $26.8^{\circ}$  on the 13th.

The rainfall was only .638 inch, distributed over 10 days. Of this amount .186 inch fell on the 5th. The average rainfall for January in the thirty-five years, 1871–1905, inclusive, was 2.210 inches, and the average number of rainy days was 18. The rainfall, therefore, and the rain-days were much below the average.

The record rainfall for January was in 1895—namely, 5.711 inches on 24 days. In 1876, only .406 inch was measured on but 9 days. In 1907, only .428 inch fell on but 9 days. In 1910, 2.993 inches fell on 17 days.

The atmosphere was foggy on the 16th, 19th, 20th, 21st and 31st. High winds were noted on 7 days, but never reached the force of a gale. Snow and hail fell on the 11th. A solar halo was seen on the 10th; a lunar halo on the 7th. Temperature reached or exceeded  $50^{\circ}$  in the screen on 7 days; while it fell to  $32^{\circ}$  in the screen on 5 nights, compared with 8 nights in 1910, only one night in 1909, 8 nights in 1908, 4 in 1907, 2 in 1906 and in 1905, 3 in 1904, 7 in 1903 and in 1902, 3 in 1901, but 18 in 1895. The minima on the grass were  $32^{\circ}$  or less on 13 nights, compared with 14 nights in 1910, 13 in 1909, 15 in 1908, 16 in 1907, 11 in 1906, 9 in 1905, 11 in 1904, 9 in 1903, 12 in 1902, 11 in 1901, and 29 in 1895. On the 13th the maximal temperature in the screen was  $36.9^{\circ}$ .

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At the Normal Climatological Station in Trinity College, Dublin, Mr. C. D. Clark reports that the mean height of the barometer was 30.290 inches, the range of atmospheric pressure being from 29.563 inches at 9 a.m. of the 6th to 30.744 inches at 9 a.m. of the 18th. The mean value of the readings of the dry-bulb thermometer at 9 a.m. and 9 p.m. was  $41.7^{\circ}$ . The arithmetical mean of the daily maximal and minimal temperatures was also  $41.7^{\circ}$ . The screened thermometers rose to  $56.2^{\circ}$  on the 25th, and fell to  $28.6^{\circ}$  on the 13th. On the 31st the grass minimum was  $17.9^{\circ}$ . Rain fell on 7 days to the amount of .567 inch, the greatest fall in 24 hours being .170 inch on the 5th. The duration of bright sunshine, according to the Campbell-Stokes recorder, was 39.7 hours, of which 5.8 hours occurred on the 31st. The mean daily sunshine was 1.3 hours. The mean temperature of the soil at 9 a.m. was  $40.3^{\circ}$  at a depth of 1 foot; at a depth of 4 feet it was  $43.8^{\circ}$ .

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Dr. W. Stewart Ross recorded a rainfall of .74 inch on 11 days at Clonsilla, Greystones, Co. Wicklow, the largest measurement in 24 hours being .34 inch on the 5th. The thermometer in the screen rose to  $57^{\circ}$  on the 27th, having fallen to  $29^{\circ}$  on the 18th. The mean maximum was  $45.8^{\circ}$ , the mean minimum was  $35.3^{\circ}$ , and the mean temperature of the whole month was  $40.6^{\circ}$ .

At Cheeverstown Convalescent Home, Clondalkin, Co. Dublin, Miss C. Violet Kirkpatrick registered 1.05 inches of rain on 10 days. The heaviest fall in 24 hours was .39 inch on the 5th.

At the Ordnance Survey Office, Phoenix Park, Dublin, rain fell on 12 days to the amount of .868 inch, the greatest measurement in 24 hours being .290 inch on the 5th. The total duration of bright sunshine was 63.6 hours, the largest amount recorded on one day being 7.8 hours on the 31st.

At the Royal National Hospital for Consumption for Ireland, Newcastle, Co. Wicklow, Dr. J. T. Crowe measured .89 inch of rain on 6 days, the maximum in 24 hours being .51 inch on the 5th. The mean maximal temperature in the screen was  $45.9^{\circ}$ , the mean minimum was  $38.5^{\circ}$ , and the resultant mean temperature was  $42.2^{\circ}$ . The screened thermometers rose to  $56.8^{\circ}$  on the 27th and fell to  $26.0^{\circ}$  on the 20th.

Mr. T. Bateman reports that the rainfall at The Green, Malahide, Co. Dublin, was .76 inch on 8 days. The greatest fall in 24 hours was .385 inch on the 5th. The mean shade temperature was  $37.3^{\circ}$ , the extremes being—highest,  $53^{\circ}$  on the 25th; lowest,  $24^{\circ}$  on the 12th and again on the 31st.

Dr. Arthur S. Goff reports that the rainfall at Lynton, Dundrum, Co. Dublin, was .89 inch on 10 days, the greatest daily measurement being .28 inch on the 5th. The thermometer in the shade ranged from  $29^{\circ}$  on the 19th to  $51^{\circ}$  on the 25th. The mean shade temperature was  $41.1^{\circ}$ .

At Manor Mill Lodge, Dundrum, Co. Dublin, Mr. George B. Edmondson recorded a rainfall of .80 inch on 11 days, the maximum being .26 inch on the 5th. The mean temperature of the month was  $39.1^{\circ}$ , the thermometric range being from  $26^{\circ}$  on the 19th to  $55^{\circ}$  on the 26th.

Captain Edward Taylor, D.L., reports a rainfall of 1.07 inches on 12 days at Ardgillan, Balbriggan, Co. Dublin. This measurement was 1.21 inches short of the average, and the rain-days were 6 in defect. The maximal fall in 24 hours was .53 inch on the 5th. The highest temperature in the shade was  $51.1^{\circ}$  on the 26th, the lowest was  $27.9^{\circ}$  on the 13th.

At Druid Lodge, Killiney, Co. Dublin, Mrs. Olive F. Symes measured .45 inch of rain on only 6 days. The largest fall in 24 hours was .24 inch on the 5th.

Dr. Christopher Joynt, F.R.C.P.I., recorded .645 inch of rain on only 9 days at 21 Leeson Park, Dublin. The heaviest fall in

24 hours was .200 inch on the 5th. In January, 1910, 3.410 inches of rain fell on 19 days at this station.

In Cork, Mr. William Miller measured .76 inch of rain on 10 days, the greatest rainfall in 24 hours was .22 inch on the 8th. The rainfall was 3.43 inches in defect of the average for January, and the rain-days were 11 days short of the average.

The Rev. Arthur Wilson, M.A., reports that rain fell on 18 days at the Rectory, Dunmanway, Co. Cork, to the amount of 2.36 inches. The heaviest fall was .66 inch on the 10th. It was a mild month on the whole, but there were heavy frosts from the 9th to the 13th. The rainfall was 3 inches under the average for the last 6 years.

At Derreen, Kenmare, Co. Kerry, Mr. W. Holbrow measured 2.39 inches of rain on 14 days. The largest measurement on any one day was .62 inch on the 8th. January was a very fine month at Derreen. Frost occurred on the 2nd, 3rd, 9th and 12th.

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#### THIRD INTERNATIONAL CONGRESS OF LARYNGOLOGY AND RHINOLOGY, BERLIN. 1911.

THE Third International Congress of Laryngology and Rhinology will be held in the rooms of the Upper House of Parliament in Berlin from August 30th to September 2nd of the present year, under the Presidency of Geheimrat B. Fränkel. A scientific exhibition will be combined with the Congress, which will illustrate the bearing of phonetics on laryngology and the development of bronchoscopy and œsophagoscopy. The following discussions have already been arranged:—(1) The bearings of experimental phonetics on laryngology (Speakers—Gutzmann, of Berlin; Struyken, of Breda). (2) Bronchoscopy and Esophagoscopy: indications and contraindications (Speakers—Killian, of Freiburg; Kahler, of Vienna; Chevalier Jackson, of Pittsburg). (3) The lymph-apparatus of the nose and of the naso-pharyngeal space in its relation to supernumerary bodies (Speakers—Broeckeaert, of Ghent; Poli, of Genoa; Logan Turner, of Edinburgh). (4) The so-called fibrous polypi of the naso-pharynx; site and manner of their insertion and their treatment (Speakers—Jacques, of Nancy; Hellat, of Petersburg). Communications and inquiries should be addressed to the Secretary of the Congress, Professor Rosenberg, 26 Schiffbauerdamm, Berlin, N.W.

## PERISCOPE.

### ZINC IONS IN FISTULÆ OF THE LOWER JAW.

THE introduction of zinc ions brought about rapid healing in three cases of fistulous tract resulting from osteoperiostitis of the inferior maxilla. In two instances cure was obtained in a month's time, after several months had been spent in trying various other methods without success. In the third case, in which zinc was used from the outset, healing was complete in two weeks. The procedure consisted in injecting into the fistulous tract a 2 per cent. solution of zinc chloride, and introducing a wick of absorbent cotton moistened with the solution as far as possible into the cavity. The free end of the wick was placed in contact with a large wad of cotton likewise soaked with the solution, and covered by a zinc electrode connected with the positive pole. The indifferent electrode was then placed over the patient's hand, and a 20 milli-ampère current was allowed to pass through for an hour. The procedure was repeated about every fourth day. Marquès and Pappon (*Archives d'électricité médicale*, July 10, 1910, and *Monthly Cyclopædia and Medical Bulletin*, Philadelphia, January, 1911).

### TURIN INTERNATIONAL EXHIBITION, 1911.

It has been decided that in the British Section of the approaching Turin Exhibition chemical and physical apparatus shall be shown as far as possible in a truly practical and novel manner. Generally speaking, no means are provided at Exhibitions for demonstrating the utility of the instruments exhibited; and it has been felt that it would be a very great improvement to show apparatus as it would be used in a laboratory. Accordingly, for the British Chemical Section of the Turin Exhibition, arrangements are now approaching completion, by which, it is anticipated, there will be on view at least two well-equipped chemical laboratories, with such work going on as will effectively illustrate various interesting processes. In addition, a large space will be available for the display in show-cases of chemical products and apparatus not in use in the laboratories. Smaller rooms will be provided for certain special appliances. The Court devoted to Scientific Instru-

ments will be of similar design. Here also arrangements are being made for the display of apparatus ready for work, electric supply, where needed, being provided. The equipment of a large dark room is under consideration, and in this, projection apparatus, such as oscillographs, spectroscopes, optical lanterns and photometers, could be shown to advantage. The organisation of the exhibits referred to has been placed by the Exhibitions Branch of the Board of Trade in the hands of Dr. F. Mollwo Perkin, under the direction of a joint sub-committee of the Chemical Industries Committee and the Mathematical and Scientific Instruments Sub-Committee. This joint sub-committee considers that exhibitors could not have more favourable conditions for demonstrating the merits of their exhibits than those which this new arrangement will afford, and that, at the same time, in the way of instruction by such demonstrations the visiting public will be greatly benefited. Further information will be given on application to the Director of the Exhibitions Branch of the Board of Trade, Queen Anne's Chambers, Westminster, London, S.W.

## NEW PREPARATIONS AND SCIENTIFIC INVENTIONS.

### *Streptococcus Vaccine for Rheumatic Fever.*

THE number of diseases for the treatment of which stock vaccines are obtainable increases rapidly. The latest addition to the already lengthy list of vaccines issued by Messrs. Burroughs Wellcome & Co. is *Streptococcus Vaccine*, Rheumatic Fever, "Wellcome." As is well known, the researches of Paine & Poynton and others have demonstrated the presence, in rheumatic lesions and in the blood of rheumatic patients, of an organism which is believed by some to be causally connected with rheumatic fever, and to which the name *Micrococcus rheumaticus* has been given. It is from this organism that the new "Wellcome" Brand Vaccine is obtained, several strains being used in its preparation. The vaccine is said to be useful in cases of persistent relapsing rheumatism. It is issued in convenient hermetically-sealed phials of 1 c.c., containing either 10 or 50 million organisms.

# THE DUBLIN JOURNAL OF MEDICAL SCIENCE.

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APRIL, 1, 1911.

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## PART I. ORIGINAL COMMUNICATIONS.

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ART. X.—*Medical Inspection of Schools and School Children.*<sup>a</sup> By J. B. STORY, M.B., F.R.C.S.I.

So very little public attention has been directed in Ireland to the subject of Medical Inspection of Schools and Scholars that I believe I shall be doing a public service in bringing the subject before the State Medicine Section of the Royal Academy of Medicine.

In Ireland there is no medical inspection of school children, nor of schools either, except in so far as the latter come within the scope of the sanitary authorities. They receive less attention than cow-sheds. A very different state of affairs exists on the other side of the Channel, and I shall briefly relate what can be done in England and Wales under the recent Education Acts, and also something of what has actually been accomplished.

Broadly considered, there are three chief departments

<sup>a</sup> Read before the Section of State Medicine in the Royal Academy of Medicine in Ireland on Friday, February 3, 1911. [For the discussion on this paper see page 305.]

in the education of children, which are concerned respectively with (1) the development of the body, (2) the development of the character, and (3) the development of the intellect. In Ireland the State concerns itself solely with the third department, the various churches devote some of their energies to the second, and the first is absolutely left untouched.

A somewhat similar state of affairs existed in the whole of Great Britain until the enactment of the recent Education Acts, when, for the first time in our history, the State took upon itself to care for the health of the children whom it compelled to attend elementary schools. The operative section is No. 13 of the Education (Administrative Provisions) Act, 1907, which includes under the powers and duties of a local Education Authority the power to provide for children attending a public elementary school, vacation schools and classes, play centres in the schoolhouse or elsewhere, and the duty to provide for the medical inspection of children immediately before, or at the time of, or as soon as possible after, their admission to a public elementary school, and on such other occasions as the Board of Education direct, and the power to make such arrangements as may be sanctioned by the Board of Education for attending to the health and physical condition of the children educated in public elementary schools.

This Act came into operation on January 1st, 1908, but, owing to the shameful neglect of our Parliamentary representatives of every party, the Act does not apply to Ireland.

What has been done by the Board of Education?

I shall read some paragraphs from a memorandum issued by it on Medical Inspection of Children in Public Elementary Schools (Circular 576).

It is there pointed out that the duty is thrown upon the Board of advising local Education Authorities as to the manner in which they should carry out the provisions of the Act, and of supervising the work. The duty of the

actual inspection is thrown upon the local Education Authorities. Each authority *must*, therefore, appoint such medical officers or additional medical assistance as may be required.

The work of medical inspection should be carried out in intimate conjunction with the Public Health Authorities, and under the direct supervision of the Medical Officer of Health.

In county areas the County Council, as the local Education Authority, should instruct the County Medical Officer to advise the Education Committee and to supervise the work, the actual execution being deputed to local medical officers of health or assistants specially appointed for the purpose. In county boroughs the Town Council of course replaces the County Council.

The functions of a School Medical Officer may be exercised by a medical officer of health, a poor law medical officer, a private practitioner, or, as occasion requires, by a skilled specialist.

As regards subsidiary agencies, the Board is of opinion that the work of medical inspection cannot be properly accomplished without the co-operation of the teacher, the school nurse, and the parent or guardian. The health visitor is also of importance. These subsidiary agents should act strictly under the instruction and supervision of medical authority.

From what has been said it is clear that the fundamental principle of Section 13 of the Act is the medical examination and supervision of *all* children in elementary schools, not merely of the weak or ailing. It is evident that although this work involves (a) medical inspection of school children at regular intervals, (b) oversight of the sanitation of the school buildings, and (c) prevention of infectious and contagious diseases, action will in all three directions be incomplete unless (d) the personal and home life of the child is also supervised.

The training of the mental faculties must not be divorced from physical culture and personal hygiene.

## SCHEDULE OF MEDICAL INSPECTION.

I.—Name..... Date of Birth.....  
 Address..... School.....

## II.—Personal History :

(a) Previous Illnesses of Child (before admission).

Measles	Whooping Cough	Chickenpox	Scarlet Fever	Diphtheria	Other Illnesses

(b) Family Medical History (if exceptional).

—	I.	II.	III.	IV.
1. Date of Inspection . . . . .				
2. Standard and Regularity of Attendance . . . . .				
3. Age of Child . . . . .				
4. Clothing and footgear . . . . .				
[III.— <i>General Conditions.</i> ]				
5. Height . . . . .				
6. Weight . . . . .				
7. Nutrition . . . . .				
8. Cleanliness and condition of skin . . . . .				
Head . . . . .				
Body . . . . .				
[IV.— <i>Special Conditions.</i> ]				
9. Teeth . . . . .				
10. Nose and throat . . . . .				
Tonsils . . . . .				
Adenoids . . . . .				
Submax. and cervical glands . . . . .				
11. External eye disease . . . . .				
12. Vision . . . . .				
	R.			
	L.			
13. Ear disease . . . . .				
14. Hearing . . . . .				
15. Speech . . . . .				
16. Mental condition . . . . .				
[V.— <i>Disease or Deformity.</i> ]				
17. Heart and circulation . . . . .				
18. Lungs . . . . .				
19. Nervous system . . . . .				
20. Tuberculosis . . . . .				
21. Rickets . . . . .				
22. Deformities, Spinal Disease, &c. . . . .				
23. Infectious or contagious disease . . . . .				
24. Other diseases or defect . . . . .				
Medical Officer's initials				

General observations.

Directions to parent or teacher.

From such considerations as the above the Board concludes that the statutory medical inspection at entrance and subsequently should be conducted as in the foregoing schedule.

*Regulations.*—The Board has decided that not less than three inspections will be necessary during school life—(1) at or about the time of admission, (2) at about the third, and (3) at about the sixth year of school life. These times are subject to future modifications. The parents should be notified that they, or one of them, may be present; the inspection should take place in school hours and on school premises; the facts ascertained must be entered in a register kept at the school; the school medical officer should make an annual report, &c., &c.

The aim of the Act is practical, and schemes for amelioration of any evils revealed should be submitted to the Board, such as establishment of school clinics, special treatment of diseases of the eye, ear, skin, and teeth. Verminous heads and bodies can be ameliorated by the work of the school nurses. Facilities for bodily cleanliness should be provided if necessary.

Further, the Board is urging the necessity of giving special instruction in the principles of hygiene to all students in every type of Training College.

The above is in very brief abstract an account of the powers conferred upon the local Education Authorities and the orders issued by the Board. The results are to be seen in the Report of the Chief Medical Officer for 1908. The Report for 1909 I have not yet been able to obtain.

In England and Wales there are 328 educational areas. In all of them medical inspection is in operation, and in 307 the Board has "recognised" the school medical officer. In addition there are 616 assistant medical officers. I may mention that there are 68 women doctors engaged in the School Medical Service, and that there are as many as 292 nurses or health visitors at work in 141 educational areas.

The estimated number of children to be inspected the first year was 1,328,000 in England and Wales. When the Act is in full working order it is estimated that one-third of all children attending elementary schools will be inspected each year.

The report goes on to speak of the schedule already mentioned, and to direct attention to the assistance that can be obtained from the parents, and then devotes some paragraphs to the cost incurred. This is a matter that is peculiarly interesting to us in Ireland.

Unfortunately, it is impossible to estimate with any exactness the total cost at present. In most cases reported the authorities show only the estimated salaries to be paid to the school medical officer, his assistants and nurses, with allowances for travelling expenses, &c. The total cost would include also apparatus and equipment, printing, postage, stationery, and clerical staff.

In a few cases a fee *per capita* of children inspected is the system adopted—a bad system according to the chief medical officer. In some districts it is as low as one shilling, but is more generally one and sixpence. In one case it amounts to half-a-crown.

The cost of a scheme may be considered in relation to two facts—(1) the number of children in average attendance for the statistical year, and (2) the produce of a rate of one penny in the pound.

#### COSTS OF SALARIES, &C., AS COMPARED WITH THE NUMBER OF CHILDREN IN AVERAGE ATTENDANCE.

In 32 counties (out of 62) the average cost per child in average attendance is 4.79d.

In 42 county boroughs (out of 73) it is 5.69d.

In 38 urban districts (out of 54) it is 7.56d.

From these figures we may make an approximate estimate that in Ireland the cost would work out to something about sixpence per child.

(2) Cost of salaries, &c., considered as decimals of a penny rate in the pound.

In counties the average cost considered in this way is 0.15d.

In county boroughs, 0.19d.

In municipal boroughs, 0.23d.

In urban districts, 0.28d.

These figures show that less than 3-10th of a penny rate in the £ is sufficient to defray the cost of medical inspection in England and Wales.

#### RESULTS OF MEDICAL INSPECTION.

It is not possible to deal in a broad way with the results of medical inspection in a limited number of subjects drawn from the official schedule, but the reporter refers to several matters rather as examples than otherwise. I mention a few of them :—

*Nutrition.*—It is impossible to give figures, as there is no absolute standard of what is and what is not healthy nutrition. Moreover, the malnutrition may be due to several different causes.

*Cleanliness.*—In some areas from 5 to 10 per cent. of the children are returned as “dirty.”

Useful statistics are obtained from the Report to the Bradford Authorities on certain schools in a poorer district.

The same officer examined in 1906 and in 1908.

The percentage (in over 1,000 children) was as follows :—

1906—Clean, 3; somewhat dirty, 26; dirty, 61.5; very dirty, 9.5.

1908—Clean, 18.5; somewhat dirty, 42; dirty, 36; very dirty, 3.5.

Many towns have already made some degree of public provision for bathing in connection with the public swimming baths, and public slipper baths have also been provided in the poorer quarters at a small charge per bath. In this connection the shower bath system, largely adopted on the Continent, merits careful consideration.

*Cleanliness of Head.*—It may be stated in a general

way that one-half the girls in urban areas and one-quarter of those in rural areas have unclean heads. This can be greatly lessened by proper measures under the Act, culminating in prosecutions and fines. Much good has been effected in London, Gloucestershire, Worcestershire, and elsewhere, as related in the report.

*Ringworm.*—The returns, though at present very incomplete, indicate how comparatively common this disease is in many districts.

*Condition of Teeth.*—Judging from the returns it is commonly found that from 20 to 40 per cent. of all school children examined have four or more decayed teeth, the older the child the more extensive the decay.

It is a curious and interesting fact that in several of the local reports the condition of the teeth in the children from very poor districts is somewhat better than that in the children from better class districts.

The Cambridge report is peculiarly interesting on dental caries. Ignoring temporary teeth, 64 per cent. of children at the age of five have perfectly sound permanent teeth, while only 24 per cent. at the age of seven possess them.

At the age of thirteen and fourteen one-half the children have each nine or more permanent teeth carious.

*Nose and Throat: Enlarged Tonsils and Adenoids.*—From 8 to 10 per cent. of all children admitted appears to be the average of those thus afflicted.

*Eye Disease and Vision: External Eye Affections.*—Approximately 3 per cent. of all children admitted suffer from some of these.

*Vision.*—Approximately 10 per cent. of those about to leave school have only one-third of the visual standard which is regarded as normal—viz., 6/18.

*Ear Disease and Hearing.*—Examination of the returns (including children admitted to school and those about to leave) shows that one child in every sixty has running from the ear. That is, present active disease; but the report from Somerset upon 13,184 children

shows that while 1 in 88 had active disease, as many as 1 in 14 had had ear discharge in the past.

*Defective Hearing.*—This is a relative term, but it may be stated that about 5 per cent. of the school children had defective hearing of a degree to be noticed by the teachers.

*Tuberculosis.*—So much has been written about tuberculosis of late in Ireland that I leave this subject untouched.

#### AN ADDENDUM ON SANITATION OF SCHOOL PREMISES.

The school officers have reported upon—

Ventilation.

Lighting.

Heating arrangements.

Equipment.

Cleanliness of rooms.

Cloakrooms.

Disinfection.

Playgrounds.

Type and condition of sanitary conveniences and lavatories.

#### ACTION TAKEN BY LOCAL EDUCATION AUTHORITIES IN RESPECT TO MEDICAL TREATMENT.

This part of the Act involves three separate considerations. First, a power is given to local authorities, which they may or may not exercise. Secondly, a duty of sanction is laid upon the Board. Thirdly, local authorities are permitted to co-operate with voluntary agencies.

Before sanctioning schemes involving large or unusual applications of the authorities' powers the Board must be satisfied that full use has been made of the ordinary and less ambitious means available. In a circular (596) the Board has set out eight classes or groups of methods which should be followed by local authorities desiring to undertake ameliorative work :—

1. *Improvement of the School Arrangements*, including the sanitation of premises, curriculum, physical

- exercises, open-air classes and schools, school baths (where such exist), and school hygiene generally.
2. *Exercise of Powers under special Acts relating to School Children*, particularly such legislation as the Elementary Education (Blind and Deaf Children) Act, 1893, the Elementary Education (Defective and Epileptic Children) Act, 1899, and the Education (Provision of Meals) Act, 1906. To these may now be added the Children Act, 1908.
  3. *Co-operation with the Sanitary Authority* in regard to the prevention of the spread of infectious diseases, disinfection, sanitation of school premises, the cleansing of persons, and the various questions of domestic and home hygiene.
  4. *Directions to the Parent* as to the desirability of obtaining treatment for their children by their own, or the nearest, medical practitioner.
  5. *The Uses and Advantages of the School Nurse.*
  6. *The Provision of Suitable Spectacles* at reduced rates, or in necessitous cases free of charge, to those children requiring them.
  7. *The making of Contributions to Hospitals, Dispensaries, and Nursing and Children's Care Associations.* The Board has considered that before the direct treatment of ailments is undertaken by a Local Education Authority itself, by means of a School Clinic or otherwise, all reasonable advantage should be taken of the benefits of such institutions as hospitals and dispensaries as far as such are available and suitable to the particular needs and diseases of school children. The Board has made it permissible for Authorities to include among the conditions of contribution to this kind of institution a provision allocating reasonable remuneration to the medical staff responsible for carrying out the treatment provided. In some districts there are no such institutions; in others they are already overtaxed, and, therefore, no universal rule or practice can be laid down.

8. Lastly, the Board has been prepared to consider *the establishment of School Clinics*, managed by Local Education Authorities and having medical advisers who are either general practitioners whose part-time services have been secured by the authority or who are whole-time medical officers of the Authority. Before sanctioning the establishment of a School Clinic as an "arrangement" under Section 13 (1) (b) of the Act, whether of a general character or for dental treatment only, the Board has required to be furnished with detailed information as to the methods and scope of the work which it is proposed to do. They have in particular required to be informed—

(i) What precautions the Local Education Authority will take to secure that only those children shall be treated in a School Clinic for whose treatment adequate provision cannot otherwise be made, whether by the parents or by voluntary associations or institutions, such as hospitals, or through the agency of the poor law.

(ii) What precise diseases and defects will be treated.

(iii) By whom and on what terms and conditions the treatment will be carried out and what will be its extent.

(iv) What is the estimated cost of the clinic in respect of buildings and equipment, maintenance and administration, and treatment, and how it is proposed to meet this cost, out of the rates or otherwise.

The acute problems of treatment arise in three directions :—

1. The question of adequacy. In what way is treatment to be provided which cannot be provided by the ordinary medical man?

2. Treatment for the necessitous. How is it to be provided for those who cannot afford the expense?

3. How is it to be provided for the neglected child with irresponsible or indifferent parent?

The Report goes on to give information of what has been done in various districts in the matter of school nurses, provision of spectacles, contributions to hospitals, children's care committees, and school clinics.

The first scheme submitted to the Board for the establishment of a school clinic was that at Bradford.

From the report it appears that as many as 841 children were treated in the clinic, I presume during the statistical year.

The first school dental clinic in England was established at Cambridge by Mr. Sedley Taylor in 1907—that is five years after the first such clinic was established at Strassburg in Germany. The Cambridge clinic was taken over by the local authority, and is worked now at a cost of about 1s. 3d. *per caput* (on number of children on school register). In Germany the cost is from 5d. to 8d.

I have very briefly touched on what can be done in England and Wales under the recent Acts, and also upon what has been already accomplished, and every one must share with me the feeling of bitter regret that the same cannot be done in Ireland.

It is impossible to over-estimate the good that would be done for the health of Irish men and women if every elementary school child were to have its physical condition investigated in the manner described three times during its school life, and this done with the definite intention of curing remediable diseases or defects.

Nor can the good results that would flow from an annual report by a medical man upon the sanitary state of every primary school be over-estimated.

It has been shown that the cost of working such an Act is really infinitesimal when compared with the probable benefits to the health and well-being of the juvenile population.

When I put my name down several months ago to read a paper upon this subject I never expected that it would

be a somewhat burning question by the time the paper came forward. I refer to the report of the Council of the Dublin Sanitary Association and the strictures therein upon the action or inaction of the Commissioners of National Education in Ireland.

The Commissioners deserve some consideration, as, like the Israelites, they are expected in many instances to make bricks without straw. It seems to me that no really effective cure for the evils possible under present conditions will be forthcoming until an Act similar to what exists in England is also operative in Ireland. And, poor though we may be, it is absurd to assert that we are unable to raise enough to provide efficient medical inspection of our schools and school children when it is known that in England the highest rate required is less than three-tenths of a penny in the pound.

Some alteration in our system of national education would be required before such an Act could be put into operation, as the local body which levies the necessary rate must be given some definite control over some, at least, of the arrangements in the schools in its district.

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ART. XI.—*Note on the Diagnostic Value of Luys' Segregator.*<sup>a</sup> By R. A. STONEY, M.B., F.R.C.S.I.

WHEN last spring I read a short paper on two cases of nephrectomy before this Section I was surprised to hear the opinions expressed by most of those taking part in the discussion afterwards that they considered Luys' segregator of little practical use, and that in many instances in their hands it had failed to give definite results. I wish, therefore, to bring before the members of this Society the definite position that this instrument fills in the diagnosis of lesions of the kidney, and also in determining the relative functional value of these organs as a preliminary to operation upon them.

<sup>a</sup> Read before the Section of Surgery in the Royal Academy of Medicine in Ireland on Friday, December 9, 1910.

In *La Presse Médicale* for August 3rd, 1910, there is a paper by M. Luys on this subject, of which I shall not hesitate to make free use.

There are two points to be considered—(a) First, that the separation of the urine from the two kidneys by means of this instrument when properly employed is perfect. (b) Secondly, that the results of separation of the urine from either side by means of an intravesical segregator are in many cases superior to those obtained by catheterisation of the ureters.

(a) It has been shown by experiments on the cadaver that, when the segregator is placed in the bladder and different coloured fluids are injected into either kidney, these fluids escape unmixed from the channel on either side of the instrument, the anterior abdominal wall and the bladder may be opened and the whole process watched, when the coloured fluid is seen entering the bladder by either ureter, collecting in the pouch on either side of the septum, and escaping by either channel. That the same perfect separation can be obtained in the living has been proved again and again by innumerable observations recorded from all countries. But in order to obtain this perfect separation it is necessary to see that both the patient and the segregator are in proper position. The patient should be in a sitting posture, or should at least have the thighs horizontal, while the body is raised to a sloping position. This position is most easily obtained by placing the patient on a gynaecological chair, but it can also be obtained while the patient is in bed by raising the trunk with a bed-rest. The segregator must lie accurately in the middle line and the convex border of the curve must lie snugly against the floor of the bladder, with the junction of the stem and curve tight against the neck of the bladder.

The method of performing an intravesical segregation with this instrument is as follows:—The rubber sleeve is pulled over the centre stem of the instrument; the two catheters are placed one on either side, and the small cap

is screwed on the point so as to lock the three pieces together. A soft rubber catheter is passed and the bladder washed out. A few ounces are then left in the bladder, the catheter is withdrawn, and the segregator is introduced. There is usually little difficulty or pain in doing this; certainly not more than with the introduction of a cystoscope. When the instrument has been pushed completely into the bladder it should be gently withdrawn till the curve is felt to come up against the neck of the bladder. The handle is then raised to a horizontal position. This depresses the curve against the floor of the bladder. That the instrument is in good position may be ascertained by examining with the finger in the rectum in the male or the vagina in the female. By a screw movement of the handle the septum is raised and everything is now ready to commence the experiment. The fluid left in the bladder first escapes in a continuous stream by either catheter, then urine mixed with the remainder of the fluid, and finally the urine escapes in a normal or abnormal manner according to the conditions of the kidneys in any particular case. The following are brief records of the results obtained by the use of this instrument in three cases:—

CASE I.—The first case was a woman of twenty-five, under the care of my colleague Dr. Moorhead. She had a large movable tumour on the left side lying partly under the ribs which was thought to be a movable kidney with intermittent hydronephrosis or possibly pyonephrosis. The case has been fully described by Dr. Moorhead before another Section of this Academy. As the patient was suffering from very advanced valvular disease of the heart, I examined her in bed, propped up with a bed-rest. Normal-looking urine escaped from either side in equal quantities. As this was one of the first times on which I had used this instrument I did not feel satisfied that it was working properly, but thought there might be leakage from one side of the bladder to the other. I, therefore, injected some methylene blue solution through the left catheter. It returned from this

side, the urine escaping from the other catheter remaining uncoloured, showing that the segregation was perfect. It was afterwards found that the tumour was not the kidney but a wandering spleen.

CASE II.—The second case was a man who had hæmaturia after an accident, the diagnosis made being a ruptured kidney, probably on the right side. His urine was segregated, and it was found that that from the left side was normal and contained no blood, whereas that from the right appeared to be nearly pure blood. The diagnosis was confirmed, therefore, and at operation the right kidney was found to be severely torn and pulped.

CASE III.—The third case was a girl of twenty-two, suspected to be suffering from tuberculosis of the left kidney, and showing pus, blood, and tubercle bacilli in the urine. She was segregated on two occasions. On the first an anæsthetic was employed, and the amount of urine collected was very small, but that from the right side contained no pus or blood, whereas that from the left contained both. On the second occasion no anæsthetic was employed, and in the course of forty minutes 11 drms. were collected from the left side and 8 drms. from the right; that from the left contained blood, pus, and tubercle bacilli, whereas that from the right was normal. In this case the exact course of the secretion by the two kidneys was beautifully demonstrated. The urine escaping from the right side came in regular gushes of three or four drops at a time, while that from the left came in irregular gushes of four to seven drops at a time.

I shall not weary you with the further record of similar cases. I have said enough to prove that the urine from the two kidneys can be accurately separated, and a perfect picture obtained of the method of secretion.

Professor Cestan, of Toulouse, writes as follows:—“Never, in my hands, has Luys' segregator been wrong, and its results have always agreed admirably with the clinical or operative findings, so well that in the presence of an apparent contradiction I would place more faith in the segregator than in my clinical investigations; but it is necessary to know how to use the segregator and a good segregator. I repeat that, for me, the simplest, the most

satisfactory, the most innocuous, and the best is that of Luys."

Professor Hartmann thus describes the absolute confidence that should be placed in this instrument:—"The proof of the perfect separation of the bladder into two watertight compartments by this instrument is furnished by the examination of the urine obtained in cases of unilateral renal hæmaturia or pyuria. Since from one side blood-stained or purulent urine is obtained, whereas the other side affords urine perfectly clear and showing no blood and not a single pus cell even after centrifuging. It is also shown by the results given by the segregator in cases after nephrectomy. The catheter corresponding to the existing kidney gives exit to urine by small rhythmical jets. While that on the nephrectomised side yields not one drop of liquid."

Enough has been said to prove our first point—that the segregator gives satisfactory and reliable results when properly used. We will now consider the other half of our contention—namely, that in the majority of cases intravesical segregation is preferable to ureteral catheterisation. M. Luys claims six advantages for his method of separation of the urine.

1. First, it is easier than ureteral catheterisation. It can be employed by any surgeon, and does not require the same amount of skill and practice that is necessary for the introduction of a ureteral catheter. Also, it can be practised anywhere, not necessitating any expensive apparatus or special light, so that the necessity for an electrical installation is done away with. In cases where the patient is so ill as to make any disturbance undesirable it can be practised without disturbing the patient in bed, as in the first case reported above.

2. Secondly, it is absolutely exempt from the danger of contaminating a healthy kidney by a ureteral catheter which has passed through an infected area. Cases of a fatal result from this cause have been reported by Israel, Hartmann, Legueu, Tuffier, Sampson, and others.

3. Segregation by this method does not disturb the function of the kidneys, or, if it does, it affects the two kidneys equally. Ureteral catheterisation, on the contrary, may stimulate the kidney, or double catheterisation if the catheters are introduced to different levels may stimulate the two kidneys in a different manner or to a different extent. Franck, of Berlin, has practised first ureteral catheterisation and then intravesical segregation on the same patients, and has proved that the former manipulation has disturbed the secretion of the kidney considerably more than the latter. In one case catheterisation, unlike the segregator, caused a spasm of the kidney, and in another case it provoked an abundant polyuria.

4. Intravesical segregation alone permits a knowledge of how a kidney empties itself. In some cases of hydronephrosis produced by a kinking of the ureter no urine escapes from the corresponding tube of the segregator, but may at once begin to flow if the kidney on that side is gently lifted up towards the diaphragm. If a ureteral catheter is used in these cases it may pass through the kink into the pelvis of the ureter and withdraw the urine without the kink having been noticed. In the same way when a small calculus is lying in the ureter a catheter may pass it without detecting its presence, and the urine will then escape from the catheter in a normal manner, whereas in using the segregator the flow of urine from that side would be absent or diminished.

5. The intravesical separation furnishes the total amount of urine secreted by each kidney. If one ureteral catheter is passed to collect the urine from one kidney, while the urine from the other is collected by a catheter in the bladder, some urine may, and usually does, escape between the catheter and the wall of the ureter and mixes with the urine from the other kidney in the bladder, thus falsifying the results obtained. Even when both ureters are catheterised, some urine escapes from either kidney into the bladder, and the amount lost in this way from

the two kidneys may not be the same. Kouznetzky has catheterised the two ureters, then emptied the bladder, collected the urine from the two ureteral catheters for a period of two hours, and then emptied the bladder again. In one case he found 194 cubic centimetres and in another case 148 c.cs. of urine collected in the bladder.

6. Finally, in children ureteral catheterisation is usually impossible, but the small sized segregator (No. 15 French scale) can generally be passed, and gives perfect results.

Let me conclude by quoting M. Luys :—" There exists a mistaken tendency to establish a complete antagonism between the method of endovesical segregation and catheterisation of the ureters. The fault lies in thinking that the two methods are hostile, when, on the contrary, it is from their alliance that absolute exactitude of diagnosis of the functional condition of the kidneys by separation of the urine arises; each of them has very precise indications. In the great majority of cases it is the endovesical segregation which should always be applied first as a method of examination, and great is the mistake of those who protest that the segregator should be used only as a last resort when ureteral catheterisation has proved impracticable. It is no less true that, as a complement to the information thus gained, and in certain special cases, it is an advantage to have recourse to catheterisation of the ureter. If the examination of the renal function ought to be made with the segregator, examination of the ureter and pelvis of the kidney can be made only with the ureteral sound. Briefly, the conclusion which I have advanced for the last eight years, and which seems to me to be more than ever the expression of the truth, is that the segregator is more simple to use, is free from dangers in its employment, and can be utilised for the diagnosis of the renal function in a larger number of cases than catheterisation of the ureter. Well applied it gives results exactly definite and certain, and it affords a complete security."

ART. XII.—*The Diagnosis of Renal Tuberculosis.*<sup>a</sup> By  
CECIL P. SMYLY, M.D., B.Ch., B.A.O. Dubl.; L.M.  
Rotunda.

TUBERCULAR affections of the kidney may be divided into two groups—(1) acute miliary tuberculosis and (2) tubercular infiltration. The former occurs usually in early life, and forms part of a general tubercular infection; both kidneys are involved, numerous miliary nodules being found, chiefly in the cortex, which rarely coalesce and never form large caseous areas. The renal symptoms, if any, are entirely overshadowed by those of the general infection, irregularly intermittent or hectic fever, somewhat resembling typhoid, preceded by failing health and anorexia, and associated with signs of mischief in the lungs, brain, lymphatic system, or other structures.

Tubercular infiltration, or renal phthisis, on the other hand, is usually met with between the ages of twenty and forty, though it may occur outside these limits. According to the accepted theory it affects the male more frequently than the female sex; but modern researches tend to show that the proportions are nearly equal—some writers maintaining that the disease is more common in the female. It forms 10 per cent. of all cases of tuberculosis.

Either kidney may be affected alone, the right rather more often than the left, or both kidneys may be involved, in which case, as a rule, the pathological changes are distinctly more advanced in one than in the other. The disease tends to spread to other parts of the urogenital system or to appear in different localities simultaneously.

The ætiology of renal phthisis is the same as that of tubercular disease in other organs—heredity, surroundings, occupation and nutrition being predisposing factors, while chronic inflammatory processes such as pyelitis,

<sup>a</sup> A Thesis read for the Degree of Doctor of Medicine in the University of Dublin, February 27, 1911.

cystitis, and urethritis, especially those due to gonorrhœal infection, congenital malformations, injuries and excessive mobility of the kidney, are in more immediate connection. The importance of injury is probably not very great, but the association of tuberculosis with floating kidney is noticeable, the frequent alterations in blood supply and the impeded evacuation of urine leading to degenerative changes in the epithelium of the kidney, which allow the bacilli to gain a lodgment.

Infection may take place in various ways. Hæmatogenous, or so-called primary tuberculosis, is nearly always capable of being traced to a focus in some other part of the body, such as the testis or lung; but if, for instance, it started in a bronchial gland, which subsequently healed, the existence of the primary focus might easily be overlooked, and Israel states that he had a case of true primary tuberculosis in a boy of eight, in whom there was no sign of any other lesion. This is the commonest mode of origin in tuberculosis of the kidney.

If the infection spreads upwards from the lower urinary tract, it is said to be urogenous or ascending. Owing to the fact that the bladder, ureters, seminal vesicles, testes, and, in some cases, the prostate may be already affected when attention is first drawn to the condition of the kidney, it may be extremely difficult to decide whether the infection was originally descending or ascending. The question as to the relative frequency of these two modes of infection is still open, but the great mass of evidence is in favour of hæmatogenous infection being the more common. In many cases the disease is confined to one kidney, and though bladder symptoms may appear early, one must remember the long period during which the infection may be latent, and also the possibility of a hæmatogenous renal associated with a urogenous bladder infection. Frequently tuberculosis affects the testis and kidney without any involvement of the bladder. It is besides somewhat difficult to explain how a non-motile bacillus can travel upwards against the almost continuous

stream passing down the ureters. Albarran found experimentally that pure cultures of Koch's bacillus could be injected into the ureter without producing any result unless the lumen of the ureter was obliterated below the site of inoculation. Either, then, one must presuppose a gradual extension up the ureteral mucous membrane leading to stenosis from the contraction of ulcers and peri-ureteric inflammation, or else anti-peristaltic movements of the ureter stimulated reflexly by the spasms of the bladder muscle, in order to account for an ascending infection. When the second kidney is involved after long continued disease in the first, it is possible that the infection may be urogenous, the bladder serving as the means of communication. Occasionally, but very rarely, the kidneys may be infected by direct extension from neighbouring structures, as in tuberculosis of the vertebræ, but more commonly the disease spreads from the kidney to the vertebræ or liver.

In renal phthisis tubercles occur in the pyramids; these rapidly degenerate, become caseous and coalesce, forming cavities of very irregular shape and size, with ragged walls lined with granulations and filled with caseous matter. The kidney is thus more or less enlarged, and the capsule over the caseous areas becomes thickened. If the process extends towards the deeper parts of the parenchyma the whole kidney may be reduced to a mere sac of caseous matter, without any involvement of the ureter and without any changes in the urine. In such cases the enlargement of the kidney may not be marked. If, on the other hand, as more usually happens, the disease spreads towards the pelvis of the ureter, the mucous membrane becomes thickened and tubercular ulcers develop in it, resulting in stenosis and sometimes obliteration of the lumen. The pyelonephritis is thus converted into a pyonephrosis. Perinephritis and abscess formation also frequently occur, and the kidney is very much enlarged.

In the rare cases of ascending infection the obliteration

of the ureter may produce the very uncommon condition described by Tuffier under the name of tubercular hydro-nephrosis, the kidney forming a sac of varying size filled with a clear fluid in which tubercle bacilli can be demonstrated.

Tubercular ulceration of the papillæ sometimes occurs without any involvement of the parenchyma. The ureters are almost invariably affected sooner or later, and in 50 per cent. of cases tubercular cystitis develops. In the early stages this is limited to the neighbourhood of the ureteral opening of the affected side, but may spread down towards the neck of the bladder, while the rest of the mucous membrane is perfectly normal. Ascending infection first attacks the neck of the bladder and spreads upwards uniformly.

In the early stages of renal phthisis symptoms, both general and local, are, as a rule, conspicuous by their absence, the duration of the latent period depending on the location and rate of growth of the primary nodules. If the tubercles burst into or involve the pelvis of the ureter towards the beginning of the disease symptoms will appear early. In rare cases a sudden severe attack of hæmaturia is the first sign of the trouble, produced by ulceration of the apices of the renal papillæ. Sometimes a tumour may be felt in the lumbar region. More commonly the patient complains of a dull, dragging pain, increased by pressure, just under the inferior angle of the scapula, of neuralgic pains radiating in various directions, or, if the ureter is involved, of pain along its course resembling colic, and probably caused by the passage of caseous masses or blood clots. These pains are not increased by movement nor relieved by rest. Increased frequency of micturition, especially at night, but without an increase in the quantity of urine, is generally one of the earliest signs, and may be accompanied by strangury and dysuria, even before the bladder is affected. As a rule, however, the first symptom is the presence of pus in the urine, which may continue for prolonged periods with-

out any concomitant signs. Long continued pyuria, which has no apparent cause and which refuses to yield to ordinary methods of treatment, should always lead one to suspect tuberculosis.

As the disease advances the symptoms become more marked. A tumour, tender on pressure, may be felt, either smooth and fluctuating in the case of hydronephrosis or pyonephrosis, or lobulated, with softened areas, in infiltration, the degree of hardness depending on the sclerosis of the capsule. In thin subjects with lax abdominal walls the thickened ureter may sometimes be detected either through the abdomen or by rectal or vaginal examination. The urine contains varying quantities of pus according to the stage of advance of the disease, blood corpuscles (rarely in large quantities), caseous *débris* occasionally accompanied by tubercle bacilli, and, of course, albumin, usually small in amount, unless chronic nephritis is also present. The reaction in uncomplicated tubercular infection is acid, but when there is a mixed infection it becomes alkaline. It must be remembered that though the urine is generally turbid, perfectly clear urine does not preclude the possibility of advanced disease, for the ureter on the affected side may be obstructed by a mass of *débris* or obliterated by the swollen mucous membrane and the accompanying peri-ureteritis.

In the later stages the kidney and bladder symptoms become more marked, fever of an irregularly intermittent or hectic type occurs, as in pulmonary phthisis, and there may be night sweats, anorexia, emaciation, and general lowering of the vitality. When the second kidney is unable to perform the duties of both, or if the excreting tissue of the two kidneys is insufficient, anuria sets in to terminate in uræmia.

The diagnosis of renal phthisis may be very easy or extremely difficult, or even impossible during the life of the patient. If there are marked symptoms of pulmonary phthisis with dull pain in the loins and along the ureters,

unaffected by movement or rest, if there is dysuria and frequency of micturition while the urine is acid in reaction, turbid with pus and *débris*, and contains red blood corpuscles and tubercle bacilli, there need be little hesitation in giving an opinion. But in such cases little or nothing can be done for the victim, and the question of diagnosis is of small importance.

It is in the early stages, when treatment is still capable of being successful, that a correct diagnosis is most necessary and also most difficult to formulate. All the ordinary methods of examination may be employed with little or no success, for in few other organs are the symptoms of disease so contradictory; the pain of which the patient complains may have absolutely no connection with the kidney, while the pain caused by disease may be referred either to the healthy kidney or to some other organ—*e.g.*, the appendix. Again, the dull pain usually met with in tuberculosis may be simulated by tumour or stone, or, on the other hand, renal colic may be produced by the passage of caseous masses. Frequent and urgent micturition, sometimes almost amounting to incontinence, pain at the termination of the act—in fact, all the symptoms of cystitis—may be caused by the kidney without there being any vesical lesion; while in the later stages advanced cystitis is present without pain. A tumour may be present in the lumbar region, but not recognised owing to the depth to which the ribs descend or to excessively thick abdominal walls, more especially when only the upper pole of the kidney is involved. If palpable, the tumour may not be the kidney—a diseased gall-bladder, retrorenal and perinephric tumours, omental tumours, faecal masses, even the hypertrophied healthy kidney, have all been mistaken for the diseased kidney. The general symptoms, too, may be referred with equal probability to numerous conditions, such as malignant disease, pyogenic infection, or typhoid fever.

In all cases a careful examination of the urine should be made, both chemical and bacteriological. Here,

again, doubt may exist as to the source of the pus, whether it is the bladder, one or both kidneys, and whether the infection is simple or mixed. Severe hæmorrhage is rare, but may occur in tuberculosis, while the presence of a few red blood corpuscles may be due to malignant or calculous disease. The urine may be perfectly clear or show only a slight sediment on standing, while an extreme turbidity is generally due to a mixed infection. If caseous masses containing tubercle bacilli are discovered the indications are clearer, but the bacilli are frequently absent or else cannot be detected. Forssell claims that by allowing a large quantity of urine to stand for twenty-four hours and centrifugalising the sediment he can always detect the presence of the bacilli, but by the ordinary methods they are often missed; and if only isolated ones are seen there may be some doubt as to whether they are not smegma bacilli, which are similar in appearance and staining properties. If tuberculosis is suspected, but no bacilli can be found, an injection of tuberculin will frequently be followed by their appearance, in addition to the characteristic general reaction; if this is not successful, inoculation may be tried on a guinea-pig, a typical tubercular peritonitis usually developing about six weeks after the injection of tubercular urine into the peritoneal cavity. Finally, albumin is generally present, in small quantities, proportional to the amount of pus, and unaccompanied by tube casts; but if chronic nephritis complicates the case, there may be tube casts and extreme albuminuria. The maladies with which tuberculosis is most often confused are renal calculus, malignant disease, septic pyelonephritis, and chronic cystitis.

In making a diagnosis it is necessary to consider first the mode of onset, whether with symptoms of cystitis, painless pyuria, or hæmorrhage; secondly, the urine, if it is acid in reaction and contains a little albumin, pus cells, and tubercle bacilli; and thirdly, the character of the pain (which is often slight), the presence or absence of enlarge-

ment of the kidney and thickening of the ureter, and finally, the general symptoms.

Cystoscopy, either with or without catheterisation of the ureter, affords most valuable and often indispensable assistance. By its means can be decided whether the blood or pus appearing in the urine comes from the bladder or from the kidney, and whether one or both kidneys are affected. Certain conditions, however, may render this difficult; the mucous membrane may be so delicate that the slightest movement, or even the mere introduction of the instrument, causes the view to be obscured by blood; the base of the bladder may be covered by a layer of pus, so that the ureteral orifices cannot be seen; or the quantity of blood or pus may be so slight as to render the difference in colour between the urine and the fluid used to distend the bladder indistinguishable.

Generally, if one or both kidneys are excreting blood or pus a turbid stream can be seen issuing from the opening of the ureter, or tubercular nodules, often ulcerated, may be found in its neighbourhood (tubercular cystitis). In tuberculosis of the bladder large inflamed or ulcerated patches occur, and also solitary ulcers, usually either at the neck or fundus of the bladder.

The opening of the ureter on the affected side also undergoes changes, its edges become thick, irregular, and reddish in colour, the surrounding mucous membrane loses its transparency, the blood vessels are no longer visible, and instead of being slit-like the orifice appears as a large gaping crater. The contractions of the ureter also are slower and less forcible than on the healthy side.

After intramuscular injection of indigo carmin the urine is stained blue, and the length of time before the colour appears at the ureteral orifice, as well as its density, give some indication as to the excreting powers of the renal epithelium, and also demonstrate the patency of the ureters.

By catheterising the ureters, the urine from each kidney

can be collected and examined separately, without being contaminated by passing through the bladder and urethra, and in this way small quantities of blood and pus may be traced to their place of origin. Care, however, must be taken when the bladder is infected not to carry particles of pus into the healthy ureter, and, if possible, it is better only to catheterise the diseased, and never the healthy, side.

In order to determine the relative functional capacity of the two kidneys various methods have been employed. Besides indigo carmin, methylene blue has been given either by the mouth or intramuscularly, but being often excreted in a colourless form, as chromogen, its appearance at the ureteral orifice cannot be observed. Phlorizin produces a temporary glycosuria, which, however, is very uncertain in its appearance, the diseased kidney often excreting more than the healthy. Kryoscopy, in experienced hands, affords much useful information. The freezing point of the blood is found to bear a very constant ratio to that of distilled water; if the functional capacity of the renal tissues is impaired, the freezing point of the blood is lowered, owing to the presence in the blood of substances which the kidneys should have excreted, and the amount of lowering gives some indication as to the degree of renal inefficiency. As applied to the urine, kryoscopy presents more difficulties. The freezing point of the urine varies considerably even in healthy persons, and comparisons with that of the blood are so uncertain as to be of little or no value. If, however, specimens are obtained from both kidneys simultaneously the difference between their freezing points is very slight, unless disease is present in one or other, and, by comparing the two, a fairly accurate opinion can be formed as to the relative values of the kidneys. In general the indigo carmin test gives sufficiently accurate results, and has the advantage of being easily applied and occupying little time.

Having, by means of the cystoscope and ureteral catheter, localised the site of the disease, other factors

must also be taken into account in order to determine its nature. Pus may be due to tuberculosis, stone, gonorrhœa, or other causes, just as tumour, syphilis, stone, even simple pyelitis and hydronephrosis, as well as tuberculosis, may produce hæmaturia. The nature of the disease can be decided only by collating all the evidence, the subjective and objective symptoms, the history of the case, the clinical observations, the chemical and microscopical examination of the urine, the results of the X-rays, and, in addition, those of cystoscopy. In most cases a correct diagnosis can then be formed.

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#### BENEFICENT WOLVES.

IN the current number of the "Journal of Tropical Medicine" there is an article on the Plague in Manchuria by Mr. James Cantlie, which contains some little-known first-hand information as to the tarbagan or marmot which plays the part of disease carrier in Siberia just as the rat does in India. The little animal is much sought after by the Cossacks and Buriahs for the sake of the fat which accumulates chiefly in the abdomen towards the autumn, and just before it retires into hibernation. "The tarbagan," says Mr. Cantlie, "is in some years attacked by an epizootic with the following symptoms: The animal becomes languid and ceases to bark; its gait is unsteady, and under one shoulder there sometimes appears a reddish, tense swelling; if far from its hole the animal fails to find it, and if it reaches its hole the other healthy animals refuse it admittance, when it falls a prey to wolves, who have a great liking for marmot, whether healthy or diseased. The wolves do not contract the disease from eating the marmot, and this scavenging by the wolves is considered the chief reason why men escape so frequently from the disease as they do. Should, however, people handle a marmot dead of the disease, sickness is almost sure to follow, and death, as a rule, occurs in a few days. This disease, which is endemic in the district referred to, is now recognised locally as identical with plague, but its spread is confined to the family of the person first attacked. It would seem probable that the fleas of this animal communicate the disease to the members of the household, and that only those bitten by them are attacked by the disease."—*The Standard*, Feb. 28, 1911.

## PART II.

### REVIEWS AND BIBLIOGRAPHICAL NOTICES.

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*On Acute Intestinal Toxæmia in Infants.* By RALPH VINCENT, M.D., M.R.C.P.; Senior Physician and Director of the Research Laboratory, the Infants' Hospital, London. London: Baillière, Tindall & Cox. 1911. Demy 8vo. Pp. iv + 83.

IN these days, when so much importance is attached to the supply of sterilised or pasteurised milk for infant feeding, it is well perhaps to be reminded that it is possible to hold other views on the subject. Dr. Vincent, in the book under review, which is the substance of an address delivered before the Glasgow Obstetrical and Gynæcological Society last November, expounds the view that to feed infants on milk which has been so heated is the cause of very much of the terrible mortality to which they are subject. The organisms found in milk may be divided into those which produce acid by fermentation of lactose and those which do not. If we allow milk to remain untreated the lactic acid producers grow so rapidly that the acid formed inhibits the growth of the putrefactive bacteria; but when milk is heated the lactic acid producers are killed, and the spore-forming putrefiers, which can for the most part survive boiling for three or four minutes, are then able to multiply enormously. The author's main arguments are founded on experiments made by feeding kittens on milk which had been heated and afterwards incubated for a day, or sterilised and inoculated with one or two of the commoner putrefactive bacteria, and in which all the animals so treated died with symptoms similar to those unfortunately so common in infants; and he has reached the conclusion that it is the growth of these putrefactive organisms in the intestine

which is the true cause of epidemic summer diarrhoea, or, as he calls it, acute intestinal toxæmia. That the experiments were made in the Lister Institute argues for their probable value, but the fact that all the kittens died, and that there is no evidence of the survival of others fed differently but kept in the same place, renders them rather less convincing. The author considers that the dangers of tuberculosis in infancy, due to the consumption of raw milk, may be neglected in comparison with the danger of using milk which has been pasteurised, and that tuberculosis nearly always follows long-continued malnutrition from improper feeding.

J. T. W.

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*Food and Feeding in Health and Disease.* A Manual of Practical Dietetics. By CHALMERS WATSON, M.D., F.R.C.P.E.; Assistant Physician, Royal Infirmary, Edinburgh. Edinburgh and London: Oliver & Boyd. 1910. Demy 8vo. Pp. xvi + 638.

THIS readable book is nicely got up and is of handy size and weight. At first sight it might appear a superfluous addition to the many excellent handbooks on dietetics that already exist, but after reading it we quite agree with the opinion expressed by the author in his preface that there is plenty of room for a practical work of this nature. The fact that it emanates from the north of the Tweed adds a certain interest to the work, and gives it a touch of novelty that is decidedly refreshing. One of its most striking features is the introduction of detailed dietaries suitable for various diseased conditions. The details include careful culinary directions and evince a practical knowledge which must be as useful as it is rare. The author has evidently made a profound study of his subject and has definite convictions thereon. One of these is the extreme importance of a careful consideration of food both in health and disease. Personally we admire those who are able to eat and drink anything without pausing to consider the attendant advantages or disadvantages, but in civilised communities such

individuals are rare, and, from a doctor's point of view, should probably be regarded as non-existent. At any rate, this book will prove a help in giving advice to all those who desire from any cause to have their diet regulated. Dr. Watson expresses a partial belief in Chittenden's views, a belief which is supported by the results of his own investigations, but in discussing both the question of the amount of proteid which it is advisable to consume and other questions he avoids extremes, and adopts a common-sense position. He at the same time gives adequate space and consideration to the views of those with whom he does not altogether agree; for example, after dealing with the dietetic management of enteric fever according to the orthodox British method, he discusses the alternative plans that have been suggested. We notice that the author prefers the older method of dealing with gastric ulcer to the more modern plan associated with the name of Lenhartz. The various "diet cures" that have been from time to time advocated receive careful description, and the different forms of vegetarianism in particular are sympathetically and scientifically dealt with. We have no hesitation in recommending the book as a useful and practical work, and one which will add to the already high reputation of its author. A good index facilitates rapid reference to its pages.

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*Treatise on Diseases of the Skin.* By HENRY W. STELWAGON, M.D., Ph.D. Sixth Edition. Philadelphia and London: W. B. Saunders Company. 1910. 8vo. Pp. 1105.

AMONG the many competing Manuals of Dermatology Dr. Stelwagon's book holds a leading position, and its success is measured by the fact that within a few years it has reached a sixth edition.

It is a thoroughly reliable, up-to-date, and comprehensive text-book, and great attention is devoted to questions of treatment. The application of CO<sub>2</sub> snow is fully described, and a fair account is given of radio-therapy.

The new edition has been improved both by elision

and by important additions, so that there is but a slight increase in the number of pages, and twenty-five admirable new illustrations have been supplied.

The article on Pellagra has been wholly re-written, and many new subjects have been incorporated. Among these may be mentioned sporotrichosis, grain-mite dermatitis, tropical ulcers, granuloma annulare, lichen nitidus, gangosa (mutilating rhino-pharyngitis).

In sum, a most excellent book, well written, and eminently helpful in regard to diagnosis and practice.

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*The Dublin University Calendar for the Year 1910-1911.*

Volume II. Dublin: Hodges, Figgis & Co., Ltd., Grafton Street, Publishers to the University. 8vo. Pp. iv + 377.

THE second volume of this Calendar proceeds on the usual lines, containing lists of the honours and prizes awarded in the past academic year, the degree-lists, and the awards made in the different professional schools.

The numerical strength of the University is, we are glad to observe, more than maintained. We learn, at page 143, that the total number of students on the College Books, under the degree of M.A., is at present 1,225, compared with 1,121 in the previous year. This number is made up as follows:—Women—Non-foundation Scholars, 9; Pensioners, 161; Sizars, 4. Men—Scholars of the House, 70; Pensioners, 945; Sizars and Ex-Sizars, 36. These numbers do not include the names of students in the Medical School or in the Law School who had not paid the last half-yearly Arts' fee at the time the "Census" was taken.

The *Senatus Academicus* numbers 427, compared with 434 in 1909-1910. The list of its members is not quite up to date, for the Primate of All Ireland is still described as "*Episcopus Dunensis, Connorensis et Dromorensis*," and among the "*Doctors in Medicinâ*" we find the names of at least two lost friends, *Geraldus Franciscus Yeo* and *Ricardus Theodorus Stack*; "*Christophorus Johannes Nixon*" should be described as "*Baronetus*."

There are this year 5,084 names on the roll of University Electors, compared with 5,036 last year, and 4,990 in 1909—quite a large constituency—but not all of its members are alive!

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*Public Health Laboratory Work.* By H. R. KENWOOD, M.B., D.P.H., &c. London: H. K. Lewis. 1911. Demy 8vo. Pp. xiii + 446.

THE fact that this manual has now reached its fifth edition is in itself a sufficient proof of its merits. To all students taking the courses in analytical chemistry required for the Diploma in Public Health this work is an invaluable laboratory companion. The chemical portion of the book is divided into six parts, the first two of which are devoted to the important subject of water analysis, and occupy nearly one-third of the volume.

The various analytical processes are fully and clearly described, and brought well up to date: a chemist, however, might reasonably object to the apparatus as illustrated on page 78, recommended for the distillation of water in Wanklyn's process—the use of a glass-stoppered retort is to be preferred to a flask provided with a *cork* and delivery tube.

The methods in use for the analysis of milk and butter receive full attention. The author, in dealing with the subject of "cream separation" from milk does not refer to the peculiar behaviour of sterilised milk in this respect. Milk which has been heated under pressure will not give the proper volume of cream, even after standing for twenty-four hours, though the normal proportions of fat, casein, &c., may be present. Hence this very simple and usually reliable test may sometimes be misleading.

Chapter XIII. deals with the detection and estimation of the different antiseptics used in connection with the preservation of food stuffs—a most important subject from a hygienic standpoint. The various "colour tests" in use for the detection of formaldehyde (formalin) are fully described. As the author remarks, this antiseptic, when added in small quantity to milk, disappears

after a few days. This is, no doubt, due to the tendency of formaldehyde to interact with the proteid matter of the milk, probably to form a "condensation" product. Distillation of the milk (previously acidulated with hydrochloric acid) in a current of steam is a simple means of separating the formaldehyde for subsequent detection, and is a method which might with advantage be added to those described in the book.

Part VII. (contributed by W. G. Savage, M.D.) is devoted to the bacteriological examination of water, air, soil, and foods, and gives in a concise form a description of all that is likely to be of practical importance in this branch of the subject.

Besides the description and explanation of the various analytical processes, the book supplies, under each subject, an amount of very useful information which is indispensable to all interested in the science of Public Health.

E. A. W.

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*The Irish Review: A Monthly Magazine of Irish Literature, Art, and Science.* March, 1911. Dublin: The Irish Review Publishing Company. Pp. 52.

"CEAD MILE FAILTE" to this new contemporary! If the present—the first—number of *The Irish Review* may be taken as a sample, the future of the latest addition to the long list of monthly magazines may be taken as assured.

The Review opens with an art plate by William Orpen, R.H.A., A.R.A., entitled "The Fairy Ring." The scene is idyllic, the figures are quaint.

"*The Irish Review* has been founded to give expression to the intellectual movement in Ireland." This opening sentence of an anonymous editorial "Foreword" explains the *raison d'être* of this magazine, which, in the matter of its contents and the manner of its publication, makes a strong bid for public favour and appreciation. A weird story of "A Flood," from the pen of George Moore, is followed by a thoughtful article on "The Problem of Rural Life," by George W. Russell. There

is an instalment of specimens from an Irish anthology by P. H. Pearse. Pádraic Colum, James Stephens, and Thomas MacDonagh contribute short poems; John Eglinton, Lord Dunsany, and Mary C. Maguire are among the prose authors. The number concludes with a number of bibliographical notices.

The setting of the magazine is eminently artistic, and reflects much credit on the printers—Falconer, of Dublin.

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*Dental Surgery and Pathology.* By J. F. COLYER, L.R.C.P., M.R.C.S., L.D.S.; Dental Surgeon to Charing Cross and Royal Dental Hospitals. London: Longmans, Green & Co. 1910. Demy 8vo. Pp. xvi + 1000.

UNDER the above heading appears what is virtually the third edition of "Diseases and Injuries of the Teeth," by Morton Smale and J. F. Colyer, a manual which had been well received by students of dental surgery. In the edition to hand, which has been enlarged, brought up to date, and practically transformed, Mr. Colyer no longer collaborates, but has taken upon himself the responsibility of production. Due acknowledgement of the assistance obtained from various colleagues and others is made in the preface to the work, while throughout its pages many authorities whose writings have been consulted are mentioned.

Consisting of some 1,000 pages, it may be readily seen how fully the subject-matter of this work is treated. Illustrations—photographic, woodcut, and diagrammatic—are very numerous, being freely interspersed through its pages, no less than 890 being used to elucidate the text. Many of these, notably some of the micro-photos, are very well reproduced; amongst them we recognise old friends, but a large proportion appear for the first time in this edition.

More than 150 pages are dedicated to the consideration of dental irregularity. We note that the writer does not discard (by any means) treatment with the aid of

removable appliances (base-plates, &c.) as opposed to that by means of *fixed* apparatus, such as are used by followers of the Angle and allied schools. In this we are at one with him.

The section upon Oral Pathology is written by Mr. K. W. Goadby, and as would be expected, coming from the pen of so well-known an investigator, proves clear, interesting, and up-to-date reading. His brief remarks upon sterilisation of dental instruments are particularly practical. Fine micro-photographs accompany the descriptions of the various micro-organisms discussed.

It is of interest to note the latest theories as to the ætiology of that very important subject, dental caries, so markedly upon the increase during the last three decades, as summed up in this, the most recent British dental manual. Briefly, the author considers that the two most important causal factors of the condition are, the softer nature of the food used and its too finely divided constituent parts coupled with the larger quantity of carbohydrate stuffs now consumed as compared with the custom half a generation back—these latter so rapidly undergoing fermentative changes. Of course, the more scientific and technical side of the question is very fully gone into.

The various means of filling and treating carious teeth receive ample consideration. Following upon a somewhat exhaustive amount of matter dealing with pulp and periodontal membrane disease and treatment, comes a full discussion upon, and description of, the various pathological conditions affecting the gums. Here much that is novel and instructive has been introduced, the illustrations serving well to render more definite the individual conditions under description.

Odontomes are next accorded consideration. Illustrations are here again most advantageously employed, while the various theories and views of such specialists as Heath, Sutton, and Salter are enumerated and explained. Diseases arising from oral sepsis find a separate chapter dedicated to their discussion—an innovation, we think, in this edition. Herein the student will find material for careful study.

Conditions arising from reflex irritation receive concise attention; after which follow chapters upon extraction of the teeth and upon troublesome sequelæ of the same.

Much that is interesting and instructive concerning antral affections will be found skilfully condensed within some ten pages.

A final chapter upon Cysts and Tumours of the Jaws completes this manual. Here, again, excellent illustrations greatly enhance the text.

An exhaustive index finds a place at the end of the book. We have little doubt that this new edition of Mr. Colyer's work will prove as much, if not more, appreciated by the profession as the former editions. We would confidently recommend it to the notice of all, to whom the widely-extending sphere of modern dental surgery is of interest or importance.

The publishers are Messrs. Longmans & Co., whose reputation but anticipates what we find—a volume well produced in every respect.

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*Urinary Surgery.* By FRANK KIDD, M.B., B.C. (Cantab.), F.R.C.S. London: Longmans, Green & Co. 1910. Demy 8vo. Pp. xvi + 429.

IN "Urinary Surgery" Mr. F. Kidd attempts to put in a condensed form, for the use of the general practitioner, all the latest work done in connection with urinary surgery. This is a formidable task to undertake in a book of about 400 pages. Naturally, the author is compelled to curtail his remarks on symptoms and diagnosis in most of the diseases dealt with. This has been done with some sacrifice of clearness in these descriptions, which might have been avoided had more space been given to some of the commoner ailments, and by leaving out altogether some of the rare conditions seldom seen even by the urinary specialists themselves. Treatment, on the whole, is well done, but at times the author is rather dogmatic. For instance, when he insists that healing of a tuberculous lesion of the kidney never occurs; that no matter how slight the degree of infection in the kidney

may be, the one and only treatment is early nephrectomy. A considerable number of urologists hold a different view.

The book as a whole is well written. There are few general practitioners who will not find much that is interesting, as well as many facts that are new in this work on urinary surgery.

*A Practical Guide to the Newer Remedies.* By J. M. FORTESCUE-BRICKDALE, M.A., M.D. Oxon., Physician to Clifton College ; Assistant Physician to the Bristol Royal Infirmary ; Lecturer on Pharmacology in the University of Oxford ; and Clinical Lecturer in the University of Bristol. Bristol : John Wright & Sons. 1910. Cr. 8vo. Pp. viii + 273.

THE apotheosis of synthetic chemistry is celebrated in the pages of Dr. Fortescue-Brickdale's book. To this branch of science modern *Materia Medica* owes many of its most valuable additions, and these are described and criticised by the author with much ability and with strict impartiality. The experimental and clinical evidence for and against the usefulness of each new remedy has been carefully weighed, whilst in all cases directions are given as to dosage and the usual mode of administration.

The book consists of an Introduction and eight chapters.

In the first chapter are considered iodine, iodoform substitutes, substitutes for the alkaline iodides, bromine and substitutes for its potassium salt; sulphur, ichthyol and its substitutes, thiosinamine—which was originally introduced into medicine by Hebra in 1892—and its substitutes.

Arsenic, phosphorus, bismuth and iron form the subject-matter of the second chapter. The cacodylates and arylarsonates are fully described and their merits discussed. Similarly, under phosphorus, we are told about the glycerophosphates and the nucleins and lecithins. The author states that there seems to be no special therapeutic advantage in these latter bodies over ordinary beer yeast, which was official in the British Pharmacopœia of 1885. Their main pharmacological effect is to produce a marked leucocytosis.

Among the many iron preparations which are mentioned

probably the most useful is the malate—a thick, greenish-black extract, which forms a clear solution when mixed with water, and of which the dose is 3 to 10 grains (.2 to .6 gramme). The malate is made by extracting sour apples with iron wire. In Allbutt and Rolleston's System of Medicine (Vol. V., page 721, 1909), it is highly spoken of by Sir Clifford Allbutt himself as a remedy for chlorosis. The malate is official in many Continental Pharmacopœias in the form of the *Tinctura Pomi Ferrata*, which is composed of one part of the extract dissolved in one part of alcohol and eight parts of cinnamon water. The dose is 30 to 90 minims.

Chapter III. is divided into two sections. The first deals with drugs acting on the intestines, the second with drugs acting on "the urinary secretions"—this expression is noteworthy. The intestinal drugs are classified as purgatives, astringents and antiseptics; the urinary drugs as diuretics, antiseptics, and uric acid solvents.

To show the scientific character of the book, we may quote one sentence from the account of phenol phthalein. Dr. Fortescue-Brickdale informs us that "the purgative action depends on its power of producing a solution with high osmotic pressure in the alkaline contents of the small intestine" (page 77).

That the work is essentially up-to-date may be gathered from the following under the heading "Urinary Antiseptics:"

"The New Urotropin is a combination of anhydro-methylene citric acid with urotropin, and is also known as Helmitol. In the B. P. Codex it is termed Formamol. It contains 40.7 per cent. urotropin. . . . The dose is the same. It is decomposed by dilute acids, and still more easily by alkalies, and so is thought to act equally well in acid or alkaline urines. It is said to act well in ordinary infections, but not in tuberculous disease, or in the cystitis following spinal lesions" (page 97).

As his authority for these statements the author gives Bettex (Thèse de Lausanne, *Zeitschrift für Urologie*, iii., 4, page 407, 1909).

Chapter IV. is the most important in the book, its subject being drugs acting on the circulation. They are grouped as cardiac tonics, vaso-constrictors, and vaso-dilators.

We thoroughly agree with the opinion of "many careful observers" that, in the case of digitalis, "better results are obtained by the use of a reliable tincture or infusion of the leaves." If we were to make an exception to this statement it would be in favour of Nativelle's digitalin, a crystalline, bitter substance, insoluble in water, but soluble in chloroform and alcohol, and practically identical with Schmiedeberg's digitoxin. We have often prescribed the 100th grain tablet in mitral disease with good results. Of Cloetta's digalen we have only a limited experience, but Kiliani, of Munich, and Huchard, of Paris, who died recently, stated that it was an impure and inconstant preparation.

The other cardiac tonics noticed by our authors are strophanthus, "a less efficient drug," and cactus, which "has had a certain reputation" (page 121).

Among the newer vaso-constrictors, the following are considered:—Adrenin and allied bodies, ergotoxin, pituitary extract, and derivatives of cotarnine. At pages 125 and 126 Sir James Barr's method of treating pleural effusion after thoracentesis by intrapleural injections of adrenin, combined with sterile air, is described.

"Vaso-dilators" are disposed of in less than half a page (136), because "the action of the nitrates and nitrites is now well known and adequately dealt with in the ordinary textbooks of pharmacology." The section is therefore devoted to a brief description of *amenyl* (chemically, *methyl-hydrastimide*), which has been used in Germany of late in amenorrhœa, as it dilates the blood-vessels and so lowers arterial pressure (hyperpiesis).

In Chapter V. hypnotic drugs are treated under the headings:—"(I.) Those which are dangerous; (II.) Those presenting no advantages; (III.) Mild Hypnotics; (IV.) Medium Hypnotics; (V.) Powerful Hypnotics." All the information is excellent. Sulphonal is put in the fourth class (medium hypnotics). The author has little that is good to say for it. He seems to approve veronal, although a startling table, containing 30 cases of poisoning by this drug, with 17 deaths, covers pages 162 and 163. In one of the fatal cases, reported by Alter and quoted by Seiffert, the dose was only

15 grains. In an Appendix to this chapter a table of the more important hypnotics is given, showing the chemical structure of each, and dividing them into the alcohol, chloral, and paraldehyde groups.

At the beginning of Chapter VI. on "Anæsthetics," a very neat distinction is drawn between the two groups of drugs known as hypnotics and general anæsthetics. "Both," writes the author, "owe their activity to their power of influencing chemically the higher cerebral cells; the general anæsthetics, being very volatile bodies, are rapidly absorbed and excreted almost at once, so that their effects lasts only during their continuous administration: the hypnotics, on the other hand, being more stable liquid, or solid bodies, can be given in a single dose, the physiological effects of which will begin some time after the administration, and will continue so long as sufficiency of the drug remains unexcreted" (page 172).

The various drugs are described and their usual doses are given. The different modes of administration are then discussed according to the following scheme:—I. Direct local anæsthesia: (1) by hyperdermic injection; (2) by intravenous injection; (3) by application to mucous surfaces, especially the conjunctiva. II. Spinal analgesia, or indirect local anæsthesia. III. General analgesia and amnesia by hypodermic injection. The author regards novocaïn as one of the most important of modern analgesics. Its solutions are stable, can be sterilised by boiling, are non-irritant, and keep well. Its toxicity is slight, and its anæsthetic power, weight for weight, is equal to that of cocaïn. The duration of the complete, though somewhat transient, anæsthesia produced by it may be increased by the addition of one drop of a one-per cent. adrenin solution to 10 cc. of a solution of the strength of 10 per cent. for mucous membranes, or of 4 per cent. to 5 per cent. for spinal analgesia. Of either of these solutions as much as 2 or 3 cc. (35 to 50 minims) may be injected.

In the section of this chapter on Spinal Analgesia a full account of the production of anæsthesia for surgical purposes by injecting drugs into the spinal canal will be found. The method was first suggested by Corning in 1885, and introduced by Bier and Hildebrandt, after experiments on themselves

in 1898. Among 12,292 cases from the literature, 28 deaths are recorded, so that the mortality attendant on the method is a little over .2 per cent.

In the third section, the "twilight sleep" (*Dämmerschlaf*) produced by the hypodermic injection of scopolamin and morphin is described. As is his wont, the author sets forth the *pros* and *cons* for the use of the method in midwifery practice with impartiality. His final verdict is that the administration of chloroform "appears on the whole to offer a greater measure of comfort to the mother, at a far less risk to herself and her offspring" (page 203).

Chapter VII. treats of antipyretic drugs in groups headed quinine, acetanilide, phenacetin, phenyl-hydrazine, and antipyrin, respectively. We are glad to find this sentence, at page 233—"In this country, at any rate, antipyretic drugs are not very generally employed as a routine treatment in the self-limited fevers like typhoid, or in the course of a chronic tuberculous infection." It is to be regretted that Dr. Fortescue-Brickdale did not warn his readers in even more decided language against the possible, nay probable, dangers which attend undue interference with the febrile state. There is no other morbid condition in which the *nimia diligentia medici* is more likely to do harm.

The last chapter in this most instructive and well-written book gives a brief account of modern remedies for phthisis, acute rheumatism, whooping-cough, gonorrhœa, and functional nervous disorders. "Salicysm" is an uncouth term, but we know what it means. A timely caution is given in connection with the prescribing of bromoform in whooping cough.

In conclusion we can heartily recommend this work as in truth a practical guide to the newer remedies.

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*Some Considerations of Medical Education.* By S. SQUIRE SPRIGGE, M.D. Cantab. London: Baillière, Tindall & Cox. 1910. Pp. 101.

We confess that we are disappointed with this book. Almost everybody is at the present time agreed that Medical Education is in an unsatisfactory state: every one is agreed

as to the great difficulties which lie in the way of making any considerable change in it. So, when an author puts forward an essay on the subject, we turn to it expecting to find a well-considered and complete system set forth whereby the medical student may be better educated, and the present overloading of the curriculum may be removed.

Dr. Sprigge's work is, however, largely historical: he quotes copiously from the proceedings of the General Medical Council, and he enlarges on the relations between the University of London and the English Royal Colleges. He shows us difficulties in the way of reform, but is not anxious to show us how they may be surmounted. The only practical suggestion (for relieving the congestion of the curriculum) on which he seems to lay much stress seems to be that boys should learn their preliminary scientific subjects at school; and the value of this suggestion is lessened by the fact, admitted by Dr. Sprigge, that such scientific training can be obtained in but few secondary schools in Scotland, and in almost none in Ireland.

We do not think the Medical Reformer will get much help from Dr. Sprigge.

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*Gynecological Diagnosis.* By WALTER L. BURRAGE, A.M., M.D. (Harv.), Consulting Gynecologist to St. Elizabeth's Hospital; Formerly Visiting Gynecologist to St. Elizabeth's and the Carney Hospitals; Electro-Therapeutist and Surgeon to Out-Patients, Free Hospital for Women; Clinical Instructor in Gynecology, Harvard University. With 207 Text Illustrations. New York and London: D. Appleton & Co. 1910. Pp. xvi + 656.

THIS book aims at being a practical text-book on diagnosis, embodying simplicity of technique and concise statements of essentials. The methods of procedure of the pathological and bacteriological laboratories have been omitted because of the assumption that the physician has always at his command the services of a pathologist and bacteriologist. Rare diseases are kept in the background. The salient points of the anatomy and pathology of the different conditions are summarised at

the beginning of each chapter. Particular attention is paid to the diagnosis of diseases of the bladder and of the rectum, and a chapter on disease of the breast has been included. There are a considerable number of illustrations, many of which are original, whilst others are taken from well-known works.

Dr. Burrage's work will well repay perusal, and while it may be of too elementary a nature for the specialist, it will be undoubtedly of very great value to the general practitioner.

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*Clinical Pathology in Practice.* With a Short Account of Vaccine-Therapy. By THOMAS J. HORDER, B.Sc., M.D., F.R.C.P., Medical Registrar and Demonstrator of Morbid Anatomy at St. Bartholomew's Hospital; Physician to the Great Northern Hospital and to the Cancer Hospital, London. Oxford Medical Publications. London: Henry Frowde and Hodder & Stoughton. 1910. Demy 8vo. Pp. ix + 216.

IN an excellent introductory chapter Dr. Horder states that the special scrutiny of materials derived from the patient, as against the examination of the patient himself, is the study of Clinical Pathology. This branch of Medicine, he adds, has of late years become very important—so important, indeed, that there is no little danger of the student concluding that it falls properly to the duty of the pathologist, whom he regards in the light of a specialist in these matters. This the author regards as a “very serious error,” and he is wise enough to insist that “clerks and dressers should be encouraged and taught to undertake blood-counts and blood-cultures, agglutination tests, full urine examinations, and various other investigations which are of everyday service in the wards, in the same way that they are encouraged and taught to auscultate a heart or to palpate an abdomen.” “To change the physician for the pathologist can but end in disaster; but to add to sound clinical observations the findings of the microscope and the test-tube sums up all the notable advances made in Medicine since the days of Laënnec.” These are words of wisdom.

Dr. Horder illustrates the danger of substituting the in-

vestigations of clinical pathology for the equally important physical examination of the patient by the following incident. A student was asked, at his final examination, what points in a case of pneumonia would lead to a diagnosis of empyema.

He commenced his answer by saying: "The presence of a leucocytosis."

The collection of pathological material, and some hints on portable apparatus, form the subject-matter of the second chapter. And then, in sequence, come chapters on blood-culture, the histological examination of the blood, the sputum, pleural puncture, lung puncture, lumbar puncture, infective conditions of the nose, mouth, and throat; infective conditions of the urinary tract, joint puncture, the examination of the fæces, the diagnosis of tuberculosis and its specific treatment, on certain specific serum tests and their value in diagnosis, on fever without other physical signs, vaccine-therapy. To this last subject two chapters are devoted, and the volume closes with a copious index.

The book is wonderfully free from printer's errors or faults in spelling, but "leucopænia" and "leucopœnia" are unpardonable misspellings for "leucopenia." The word, of course, means a poverty in white blood-cells, and its derivation from *λευκός*, *white*, and *πενία*, *poverty*, is obvious. If properly pronounced with the third syllable short, "*leucopenia*," no error in its spelling can occur.

In conclusion, Dr. Horder has, in our opinion, with great skill succeeded in effecting a union between clinical medicine and practical pathology which cannot fail to have a high educational value not only for medical students but for medical practitioners also.

*The Non-Surgical Treatment of Duodenal Ulcer.* By GEORGE HERSCHELL, M.D.; late Senior Physician to the Kensington General Hospital. London: Henry J. GLAISHER. 1910. Cr. Svo. Pp. 39.

THIS little volume is a reprint of an article which recently appeared in the *Clinical Journal*, and has been issued in its present form in the hope that it may prove useful to those practitioners who failed to see it on its first appear-

ance. The author's name is well known as a writer on diseases of the gastro-intestinal tract, so, doubtless, many will procure and read with profit this little article, more especially as the swing of the pendulum seems now against the use of surgical procedures in all cases of duodenal ulcer. The paper displays an interesting faith in recent remedies, and is commendably up-to-date. We believe that the course of treatment advocated is sound, but we would like a little more proof of the existence of the adhesions which the author seems to be able to disperse with Thiosinamine or Tiodin injections.

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*Manual of Medicine.* By THOMAS KIRKPATRICK MONRO, M.A., M.D.; Fellow of, and Examiner to, the Royal Faculty of Physicians and Surgeons, Glasgow; Physician to the Glasgow Royal Infirmary, and Professor of Medicine in St. Mungo's College, &c. Third Edition. University Series. London: Baillière, Tindall & Cox. 1911. Demy 8vo. Pp. xxii + 1023.

Two facts render it unnecessary to write at any length in praise of this work. First is the fact that a third edition has been called for within the comparatively short space of five years. And, secondly, it was our privilege to express a favourable opinion of the previous edition in the number of this Journal for September, 1906 (Vol. CXXII., No. 417, Third Series). In reviewing the second edition we pointed out that the work had not hitherto been extensively used as a text-book by medical students in Ireland. We do not know whether this is still the case; but, if it is so, the fact is to be regretted.

A "manual" is a *handy-book*, and this is exactly what Professor Monro has placed within the reach of medical students. Its pages are free from statistics. They contain just enough information for the student, whose time is all too limited, to help him in his hospital work at the bedside and to enable him to pass his final examination in medicine with credit.

The work appears to have been subjected to a thorough revision. Alterations or additions have been made, more

particularly in connection with such subjects as dysentery, syphilis, cardiac arrhythmia, the cerebro-spinal fluid, epidemic anterior poliomyelitis, enteroptosis, certain skin affections, and food-poisoning.

There is little to criticise adversely in Dr. Monro's book. On page 874 two expressions grate upon us. "The backs of the hands" would read much better than "the dorsa of the hands"; and it would be more fitting to describe the desquamation in tinea versicolor as "furfuraceous" and not "farinaceous," seeing that this parasitic skin affection is caused by the *Microsporon furfur*.

Again, the author might very well have inserted the characters of cerebro-spinal fluid which is mentioned at page 630, and of hydatid fluid in the otherwise fair account of Hydatid Disease at page 958.

There are forty-two figures in the text—most of them are temperature charts or sphygmographic tracings. But the sections on diseases of the nervous system are well illustrated by coloured diagrams which should prove very useful to medical students.

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*The Practitioner's Medical Dictionary.* By GEORGE M. GOULD, A.M., M.D. Second Edition, illustrated. London: H. K. Lewis. 1911. Demy 8vo. Pp. xvi + 1043.

DR. GOULD'S name is so well known as that of a successful lexicographer that a reviewer need do little more than announce the fact that a second edition of "The Practitioner's Medical Dictionary" has been published. The author describes his work as "an illustrated Dictionary of Medicine and allied subjects, including all the words and phrases generally used in Medicine, with their proper pronuntiation, derivation, and definition, based on recent medical literature."

The book, we are told, is in every respect and detail new. "The inclusion of the best of the new and probably enduring words that have been minted in the last ten or twelve years, while at the same time keeping the

old lists complete, has been a hard task." Dr. Gould has successfully accomplished it, although "Salvarsan" finds no place in the dictionary, not even under its chemical name of "dioxy-diamido-arseno-benzol," or under its better known appellations, "Ehrlich-Hata" or "606"!

A noteworthy feature in this edition is the adoption of the modern Bâle anatomical nomenclature [BNA], which has saved space and will relieve the strain on the memory of medical practitioners and students.

For one thing the British reader must be prepared, and that is American spelling. Our cousins across "the mill-pond" dislike diphthongs above anything, have no compunction about lopping off a syllable now and then—witness "chemic" for "chemical," and (perhaps correctly) spell sulphur "sulfur." Allowance being made for these and such like mannerisms, the work will commend itself to all English-speaking communities as a well-compiled, systematic, and reliable medical lexicon.

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*Treatises of Fistula in Ano, Hæmorrhoids, and Clysters.*

By JOHN ARDERNE, from an early Fifteenth Century Manuscript Translation. Edited with Introduction, Notes, &c., by D'Arcy Power, F.R.C.S. Eng.; Surgeon to St. Bartholomew's Hospital. London: Published for the Early English Text Society, by Kegan, Paul, Trench, Trübner & Co., Ltd. 1910. 8vo. Pp. xxxvii and 156.

IN the columns of this Journal for October, 1883. Surgeon-Major Albert A. Gore, M.D., published an account of an old MSS., preserved in the Library of the Royal College of Surgeons in Ireland, which had been presented to the College by Sir John Lentaigne, M.D. This MSS., at present exhibited in one of the glass-cases in the Library, and one of the oldest and most treasured documents in the possession of the College, is entitled "The Workes of Maister John Arderne, Chirurgeon, of Newarke, in Nottinghamshire, written by his own hand. in the year of our Lord 1349. With some observations

collected in blank paper by Walter Hammond, Chirurgion, 1645." The little we know of the life of John Arderne has been gathered together carefully by Mr. D'Arcy Power and recorded in the edition of his work before us. John of Arderne himself fixes the date of his birth when he says: "And be it known to present and future generations that I, Master John of Arderne, the least of the surgeons, scribbled this book with my own hand in London in the year, viz., the first year of the reign of King Richard the Second and in the seventieth year of my age." Where exactly John studied his profession is not quite certain, but it is suggested that it was at Montpellier. It is certain that he practised abroad, and probably he was a military surgeon on the English side during the earlier part of the One Hundred Years' War. He settled in Newark in 1349, and remained there till 1370, when he moved to London, in which town he practised for some six or seven years before his death. Besides his work "*De Fistulâ*," the translation of which is given in the present volume, he wrote works on diseases of the eye, on clysters, on bleeding, on plants and their uses, and a common-place book of receipts and notes on cases. As a surgeon he appears to have occupied a foremost place in England, and the many manuscript copies of his works that still exist testify to the high opinion which his contemporaries and successors had of him. The position which Arderne occupied as Master Surgeon in England corresponded to the Surgeons of the Long Robe in France. Such men held a position intermediate between the Physicians on the one hand and the Barbers on the other. Previous to the formation of the Company of Barber Surgeons in the year 1540 the Master Surgeons formed a Guild of their own, which for a short time about 1423 was united with the Physicians. The distinction between the Master Surgeons and the Barber Surgeons is one of great interest and appears to have arisen as the result of the decrees of the Church of Rome forbidding the Clergy to practise surgery. The Clergy, in order to get over the difficulty, employed the Barbers, whose duty it was to shave the monks, to do the bleeding and minor surgical operations. Those surgeons who had

studied their craft in the Universities felt the association of barbery and surgery as one that was beneath their dignity, and so formed a guild of their own, to which only those who practised surgery alone were admitted. The progress of pure surgery was, however, so slow that the barber surgeons soon overtook it, and the Master Surgeons again became merged with the Barbers. John of Arderne had high ideals, and his code of surgical ethics is well worth study even at the present day. It is curious, however, to find persisting the ancient classical idea that the treatment of desperate cases should not be undertaken by the surgeon. John was not satisfied, however, to assume merely on the authority of others that a condition was incurable. The very condition which is the subject of the work before us, "*Fistula in Ano*," had come to be considered as practically incurable. William de Salicet, who taught surgery in Bologna in the middle of the thirteenth century, wrote as follows:—"When the fistula is complete it is assuredly so difficult to cure that it is better and more honourable for the surgeon to give up the case at once." John of Arderne did not agree with this dictum, and he operated with good results on many patients with this condition in a manner very similar to that employed by surgeons at the present day. Not only was his operation a good one, but he also had the courage and intelligence to treat his operation wounds in a rational manner and so ensure their healing.

John of Arderne must always remain a most interesting personality for those who study the past history of English surgery, and every such student must feel a debt of gratitude to Mr. D'Arcy Power for the careful edition of Arderne's work that he has given us. To the early English Text Society our thanks must also be given for the publication of the work. We have already to thank this Society for the edition of Lanfranc's "*Cirurgie*," for Vicary's "*Anatomy*," and for Bullein's "*Dialogue against the Feuer Pestilence*," and we look forward with pleasure to their publication of further medical texts. We trust the present edition will gain for the Society many additional subscribers from the ranks of our profession.

T. P. C. K.

PART III.  
MEDICAL MISCELLANY.

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*Reports, Transactions, and Scientific Intelligence.*

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ROYAL ACADEMY OF MEDICINE IN IRELAND.

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President—SIR CHARLES BALL, M.D., F.R.C.S.I.  
General Secretary—J. A. SCOTT, M.D., F.R.C.S.I.

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SECTION OF PATHOLOGY.

President—A. H. BENSON, M.B., F.R.C.S.I.  
Sectional Secretary—W. BOXWELL, M.B., F.R.C.P.I.

*Friday, December 2, 1910.*

THE PRESIDENT in the Chair.

*Two Cases of Cerebral Tumour.*

DR. T. G. MOORHEAD, after giving a short summary of the subject of "localisation of brain tumours," went on to exhibit two cases of cerebral tumour. The first was from a man, forty-two years of age, who came to hospital some months ago, complaining of pain in the head, of vomiting, and of difficulty in walking and standing. Five weeks previously he had suddenly stumbled and fallen in the street and hurt his left knee. Previously he had not felt sick in any way. He said his special difficulty was in steering himself. He had no history of previous disease. He admitted having been a fairly heavy drinker, but nothing more. On examination they found a slight increase of knee-jerks, no ankle clonus, and normal plantar reflexes. When standing he tended to fall backwards and to right side. There was nothing abnormal in the arms except a little incoördination on the

right side. There was no disturbance of sensation. His eyes were examined by Dr. Benson, who found that the right optic nerve was in a state of extreme neuritis. There was no neuritis on the left side. The pupils reacted normally. There was no nystagmus. Owing to his mental state it was impossible to determine whether there was any hemiopia or not. There was no other cranial nerve involvement. There were no trophic or visceral symptoms. He was mentally dull and apathetic. The symptoms pointed to intra-cranial growth, and they determined to do a decompression operation. They discussed the question of localisation, and came to the conclusion that it was most probably cerebellar. He was so bad that they determined to trephine him on the right side in the occipital region. Mr. Henry Moore cut into the dura mater, and displayed a cyst which contained about half an ounce of clear, yellowish fluid. This was reported to be epithelial in structure, and probably not malignant. Subsequently the patient improved very much. He became clear in mind, and replied in a jocular way when spoken to. Symptoms of intra-cranial pressure again developed. The surface of the scalp became swollen and tense; and thinking the cyst might have filled up, they turned down the flap and put a drainage tube into it. Some fluid escaped, but not much. The patient was relieved, but again the symptoms of pressure returned, and he became hyperæsthetic. He developed trophic lesions on his heels. They operated in the cerebellar region, and found that the cyst did not originate there as they had suspected. The operation relieved the pressure, but the patient gradually sank, and died in three or four weeks mainly from cardiac failure. On examining the brain they found in the frontal region a tumour about the size of a walnut extending right to the base of the frontal lobe. A very small tumour was also found in the temporal region. In the region of the operation they found a definite hernial protrusion, which proved to be an epithelial tumour apparently taking origin from the ependyma. It was apparently a compound malignant papilloma, as shown by the sections under the microscope, corresponding to similar tumours found in the ovary. On looking up the literature he found that Ferrier had had a similar case, in which, with a frontal tumour, the symptoms were cerebellar. He exhibited the specimen in

order to emphasise the fact that cerebellar symptoms might be present in frontal tumours. Whether the frontal tumour was a development subsequent to the first operation was a matter on which they could express no opinion.

The second specimen was from a man, aged thirty, who noticed three weeks before admission that he was suffering from giddiness and failure of sight. Mr. Benson examined him, and reported intense double optic neuritis. Other symptoms were increased knee-jerks on both sides, slight ankle clonus on left side, normal plantar reflexes on both sides, marked nystagmus, slight diffused headache, and occasional vomiting. The optic neuritis was, if anything, a little more marked on the left side, and they determined to operate on that side. Mr. Moore trephined him, and found evidence of great intra-cranial tension. A very large amount of cerebro-spinal fluid escaped. Subsequently a large hernia developed. The patient did no good. No further fluid was evacuated. They had no definite indication pointing to involvement of any other part of the brain. At the *post-mortem* a large tumour was found lying on top and slightly in front of the vermis of the cerebellum compressing the region of the corpora quadrigemina. They had suspected that it was probably in the neighbourhood of the cerebellum. They had felt that the best thing was to relieve tension as rapidly as possible, and leave exploration for subsequent operation. The patient was so bad that the quickest operation had to be performed. In future cases of nystagmus, without other localising symptoms, he would be inclined to advise immediate exposure of the cerebellar region.

#### *A Case of Cerebellar Tumour.*

DR. GEORGE PEACOCKE read notes on a case of cerebellar tumour.—D. P., aged eighteen years, in December, 1909, had an attack of erythema nodosum; since then she suffered on and off from headaches. In March, 1910, had double pleurisy. Admitted to Adelaide Hospital on 14th May. Three weeks before admission had been complaining of very severe headaches, accompanied occasionally by attacks of vomiting. Was constipated. After admission she had no headache for five days, when she awoke with very severe headache. Pulse 40; pupils widely dilated, and

respirations 46 and shallow. She was sweating profusely and very restless. On May 21st Sir Henry Swanzy reported that there was well marked optic neuritis in each eye, especially in the right eye. On May 31st her condition was as follows:—Knee-jerks well marked on both sides; no ankle clonus; plantar reflex normal; no difference in muscular power of legs; sensation normal; no incoördination; superficial reflexes normal; no loss of power in arms. Respirations between 30 and 40, irregular in time and depth. Eyes—Pupils equal, moderately dilated, respond to light and accommodation; slight nystagmus on extreme turning of eyes to the left. Turning of eyes, and especially head, to the left, caused giddiness and nausea. Headache was paroxysmal, occipital and down the back of neck; most severe on left side. Unsteadiness of gait, tendency to fall backwards, but not to either side. Romberg's sign was not present. Vomiting had no relation to food, and occurred frequently on some days, on others not at all. On June 2nd Mr. Gordon trephined over the left cerebellar lobe. The piece of bone removed was not replaced, and a hernia cerebri subsequently developed. The patient's condition cannot be said to have materially improved, and she gradually became less and less conscious—paralysis and epileptiform seizures being features of her condition towards the end. She died on the 6th October, about six months after the onset of definite brain symptoms.

PROFESSOR SCOTT said—On removal the brain showed a tumour in each lateral lobe of the cerebellum. On the right side the mass was somewhat spherical, about  $2\frac{1}{2}$  cms. in diameter, the outer edge being close to the surface of the lobe. It appeared of a slightly yellow colour and felt decidedly firm. On the left side the surface was of a deep orange yellow colour, and about the same size, but on section there was a very irregular contracted mass; this latter side was closely adherent to the trephine opening on the posterior side of which a small mass of the same colour was seen, and about 1 cm. by 0.5 cm. in size. Sections were made from all three portions. All showed somewhat similar appearances, but there were slight variations. The growth on the right side was firm centrally, and stained very badly. It appeared to be composed of very fine fibrils and the atrophied or degenerated remains of nuclei from former cells

and some small bands of connective tissue which stained differently from the fine fibrils. At the margin close to the grey matter were seen many cells, very variable in size—some small, some large, and some spindle cells, the last arranged in rows. The round cells were more or less in small masses—some being arranged in very elongated forms, apparently growing along lymphatic spaces. Between the most active cellular portions and the harder centre, in a few spaces a considerable increase of the neuroglia could be seen. Many badly formed blood-vessels existed here. In the tumour on the left side the connective tissue of the central portion was much more abundant and in large cicatricial bands. At the margin in a few places large spaces filled with large, badly staining cells without apparent connective tissue, except in the division between the groups of cells. In the small outgrowth in the trephine opening, small round and spindle cells and badly formed blood-vessels could be seen very like the tumour on the opposite side. These growths seem to me to have started in the neuroglia, and probably existed for some time as a glioma; later, from some reason, growth became more rapid and cellular, and became indistinguishable from a sarcoma, which was almost typical at the margins of all three growths. This was associated with a formation of connective tissue, death of the neuroglia cells and some degeneration of the neuroglia fibrils, which with some altered blood from small hæmorrhages formed the sclerosed centre. The margins I look on as a sarcoma, the particularly cellular type of the left tumour being caused by a very rapid growth, consequent on the altered physical conditions due to the trephining operation.

#### *Tumour of the Pituitary Body.*

DR. MAURICE HAYES said he was enabled to show the specimen through the courtesy of Dr. Werner. The patient, a woman of fifty, had been under Dr. Werner's care for a long time with some ocular disturbance. She was unmarried. Her symptoms when he X-rayed her were:—Bitemporal hemianopia, both external and internal ophthalmoplegia, double optic atrophy, but no optic neuritis, no headache or vomiting. Towards the end of her illness she was slightly unsteady on getting out of bed. Never at any time had

she any symptoms suggestive of acromegaly or the typical changes in hands or feet. Dr. Werner had sent her to him with the view of finding out if she had disease of the pituitary body. She was radiographed on July 6th. The negative showed considerable absorption of the pituitary fossa, absorption of the anterior clinoid process, as well as the posterior process, also absorption of the floor of the pituitary fossa. A negative showing a normal pituitary body was also exhibited, and showed the body to be much smaller. Anterior to the tumour the base of the skull looked normal. He diagnosed tumour of the pituitary body. The patient was admitted to hospital in October, and became gradually worse. She was totally blind before she died. She developed, finally, bulbar paralysis, and died early in November. Dr. O'Kelly removed the brain, and a large tumour of the pituitary was found. As far as he knew it was the first case in the British Isles of which a diagnosis had been made from an X-ray photograph, although it had been done on the Continent. Dr. Werner would publish details of the case from his own standpoint. The exact histological nature of the case it was difficult to determine, but Professor McWeeney thought it was of an endothelial nature.

DR. STOKES drew attention to a paper in the Johns Hopkins Bulletin, which read like a novel, by Harvey Cushing. The writer made a statement which the specimens put before them that evening had impressed upon him—namely, that brain tumours were extremely common. He (Dr. Stokes) had been at the Johns Hopkins Hospital five years ago. At that time they had operated on six cases. In the last two years they had operated on 150. Five years ago they had not a single success. In the last two years they had actually cured 15 or 16 per cent. They had relieved and sent back to work about 60 per cent. of the remainder. They had about 10 per cent. of deaths soon after operation. They had not a single hernia cerebri or stitch abscess. Great stress was laid on early diagnosis, and on the point that the fields of vision for different colours were very early altered. From the number of cases which he had seen recently brain tumour was evidently increasing in Dublin.

DR. GUNN said the fact that in two of the cases exhibited

a tumour growth was found present at the *post-mortem* at or close to the seat of the opening, which apparently was not there at the time of the operation, was suggestive that the injury might have something to say to the formation of such a growth.

DR. PARSONS said it was held at the meeting of the British Medical Association at Belfast that the information to be obtained from the destruction of the optic nerves was not at all so reliable as Horsley contended for. The specimens shown, however, confirmed Horsley's view, and he himself recently had a case of double optic neuritis, which confirmed that view. The demonstration of the value of X-rays was most important.

DR. DAWSON said it had been held, though not absolutely proved, that the frontal lobes were the site of the moral faculties, and it had been found in many cases that destruction or injury of the frontal lobe did interfere with the moral character. It was in the frontal region that chronic alcoholism was found to exert most of its deleterious influence. It was held some years ago that tumours and other foreign bodies in the interior of the brain produced their effects by the extreme local anæmia caused, and he had seen nothing recently to make him modify that opinion. In the case of rapid growth or hæmorrhage, where pressure was sudden or rapid, the direct pressure itself might result in a seizure; but it was possible to explain epileptoid seizures by means of the extraordinary localised anæmia which they produced.

DR. MATSON said a man had come to him about eighteen months ago with a history of apoplexy. He had all the classical symptoms of hemiplegia, and he treated him in the usual way. He seemed to be going on all right, but three days afterwards he sat up in bed and died. Dr. Earl found there was a hæmorrhage, but it had occurred just at the time of death, and apparently had nothing to do with the prior symptoms. There was a small glioma in the Rolandic area.

DR. ROWLETTE asked for further information as to the origin of the tumours, and expressed his appreciation of the demonstration of the radiographic examination.

DR. CAHILL instanced a case of his about five years ago of a man who had had an accident which split the frontal bone, and who developed a habit of stealing.

THE PRESIDENT said he had had a case many years ago of a man with cataract. Nothing else was supposed to be wrong. When about to be sent home, he sat up in bed and died. An abscess was found in the anterior part of the brain the size of an egg. There was no history of injury or symptoms of any sort. On inquiry of his employer he found that he was one of his most trusted servants, but that his temper had been getting more and more violent. It showed what a great amount of brain substance could be dispensed with without much loss.

DR. O'FARRELL said he had another specimen of brain tumour, but no history. He quoted the case of a patient who, after operation for brain tumour, chased the surgeon with a knife.

MR. A. STOKES asked for some explanation of the urinary symptoms present in frontal tumours.

DR. EUSTACE said he believed that only about 5 per cent. of intra-cranial tumours had been successfully removed, but relief had been largely given to intra-cranial pressure. He was anxious to know if the optic neuritis showed any improvement.

THE PRESIDENT said that most of the cases showed very little alteration in the optic neuritis, but the operations were not performed until the cases were almost in extremis. Others with larger experience said the optic neuritis did subside considerably after a decompression operation. Sir Victor Horsley had told him that he was strongly of opinion that it disappeared altogether in a very considerable number of cases.

DR. MOORMEAD, in reply, agreed with Dr. Stokes as to the frequency of intra-cranial tumours. He was, however, confident that even a larger percentage of cures than the Johns Hopkins Bulletin reported would be effected later on. They were dealing only with the fringe of the subject. As to the possibility of the irritation of the operation producing growth, in his case the cyst was exposed at the actual site of the operation, and he presumed the subsequent growth developed from the cyst wall. A little bit of wall examined was epithelial in origin. He did not think the actual irritation was likely to produce growth. He did not think anything very positive could be said on the mechanism by which tumours produced their effects, but every day brought

evidence of the great amount of increased intra-cranial tension, and it was natural to attribute some of the results to that tension. He used to assume that it was anæmia that led to epileptiform seizures, but the direct effects of pressure lately had rather impressed him. Hemiplegia in relation to tumours of the Rolandic region was, he thought, common. As to the origin of the tumour in the first case it was impossible to get any information. The original cyst completely disappeared at the *post-mortem*. There was no communication with any of the ventricles of the brain. With regard to urinary symptoms, he could only say that he looked through the literature, and found it put down as one of the fairly constant symptoms, but without any explanation. The second tumour was a psammoma.

DR. HAYES also replied.

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### SECTION OF SURGERY.

President—R. H. Woods, P.R.C.S.I.

Sectional Secretary—A. J. BLAYNEY, F.R.C.S.I.

*Friday, December 9, 1910.*

THE PRESIDENT in the Chair.

*The Treatment of Laryngeal Stricture* (with lantern slides).

MR. ROBERT WOODS, President of the Section, read a paper in which he reviewed the history and development of the various methods of treating stricture of the larynx. He showed a patient, aged five years, on whom he had performed the operation of laryngostomy nearly twelve months previously for complete cicatricial occlusion of the larynx following diphtheria and laryngo-tracheotomy. The patient's larynx was now quite patent and functioned perfectly during swallowing, but he had not yet decided to close the fistula lest recurrence should take place.

*Ligature of the Internal Jugular Vein.*

THE PRESIDENT also showed a case of extradural cerebellar abscess and lateral sinus thrombosis, where, in addition to

the radical operation on the mastoid, he had tied the internal jugular vein.

DR. DEMPSEY said that strictures, wherever met with, were not easy to deal with, and laryngeal strictures had always been more or less of a bugbear up to the introduction of laryngostomy. The tubes were unsatisfactory, and in very small strictures it was almost impossible to get any kind of dilating apparatus in from above. He would like to know if the tracheal tube was kept in during the operation, and if the anæsthetic was administered through it. Did Mr. Woods think it would be an advantage to administer a vaccine before such an operation? One of the great dangers was that of sepsis within the first week or so, and possibly a vaccine might prove a preventive. He thought that grafting was a new and good plan. Great stress had been laid by Barlatti on the first stage, the stage of suppuration. Was one satisfied with the mere incision right down through the strictured part? Did one go through the posterior wall of the cartilage, and, if so, was there any danger of wounding the œsophagus in such cases, and might it not be a good thing to pass a bougie? Did Mr. Woods recommend the leaving of a bridge between the tracheal cannula and the laryngostomy opening? Could he give some idea of the mortality of the operation, and the average time it would take an ordinary case of stenosis from beginning to end? He thought a great many such cases were due to faulty tracheotomies performed in a great hurry and in the wrong position.

DR. MURPHY said that any one who had had experience of dilatation by mechanical means knew what a tedious business it was. At one time he had charge of several cases, and the one thing that struck him was that the surgeon must tell the patient what a wearisome time it would be, and must himself be provided with infinite patience. At the same time he thought it might be well to try dilatation by mechanical means through the mouth before undertaking that rather serious operation. We wished to know how much of the soft parts inside the larynx ought to be removed. The removal of the false vocal cords had been suggested. In Gluck's operation was there not a danger of having hair growing from the inside of the larynx when the skin of the neck was returned in closing the laryngostomy wound?

THE SECRETARY said he had recently made use of the device suggested, he thought, by Watson-Cheyne in the removal of the tongue—that was a dose of antistreptococcic serum. He was much pleased with the results subsequent to the operation, and thought it might be of use in laryngeal cases.

DR. HAYES asked if it would be advisable, in cases of malignant disease of the larynx, to perform such an operation as described with a view to forming a permanent opening in the larynx, and then applying irradiation of some kind? One might apply X-rays, and such an opening would provide a ready means of dealing with it.

DR. STOKES said he had seen cases where the patient could never do without the tracheotomy tube again. Were these usual cases? How did the vocal cords get on in such cases? It seemed rather drastic to have tin tubes and rubber tubes in one's vocal cords for the best part of a year. Were the strictures usually due to diphtheria, and were they localised in any special part of the larynx?

THE PRESIDENT, in reply, said the tracheal tube was kept in, and the child was given chloroform through Junker's inhaler. The trachea above the tracheotomy wound was packed with gauze to protect the windpipe, and to prevent the possibility of pneumonia. He had used vaccine in a good number of cases, but he thought it gave uncertain results. In a recent case, where he extirpated the larynx of a man, he used a vaccine grown from the patient's throat. The operation was not performed for six days after inoculation. The man died of profound sepsis within two days. Within the last three weeks he excised a cancer, taking away the chief portion of the upper jaw and exposing the base of the skull. He did not depend on any vaccine, but applied a solution of chloride of zinc to the raw surface, and the patient's temperature never rose. As to incision of the cicatrix it was said to be quite enough to cut through the cicatrix, and then depend on the dilatation to cause absorption of the tissue. He did not think that as safe a proceeding as to excise all the cicatricial tissue he could find. It then occurred to him to try the grafting. He did not think a bridge between the tracheotomy and laryngostomy wounds would be possible, unless the case was one in which a low tracheotomy had been performed. He believed the

mortality was 15 per cent. or 20 per cent. The average time was said to be three to six months, but such a period was much too short for his case. It was twelve months since he had done the child exhibited, and if he took out the tube, in six days the larynx would show some slight contraction. They had to wait until all tendency of the cicatricial tissue to contract had disappeared. Unless the false vocal cords were included in the scar they should not be touched—the rule should be to preserve everything that could be preserved. As to hair, in a man he would probably turn the flap up from below the wound; it would be most serious to put growing hairs inside the larynx. The kind of cancer that would likely get any good from X-rays would necessarily be a superficial one. He did not think the operation would be very much use for the treatment of cancer by radium. In the case shown the vocal cords were involved by the cicatrix, and were not visible at all. The child, however, had got good substitutes. Looking at it from below they could not tell it from a perfectly normal larynx. In swallowing, not a crumb or drop went the wrong way. He thought the operation showed a very distinct advance in the treatment of such hitherto very unsatisfactory cases.

#### *The Diagnostic Value of the Luys Segregator.*

Mr. STONEY read a paper on the "Diagnostic Value of the Luys Segregator." [It is published in full at page 253 of this number of the Journal.]

Mr. GUNN said that he agreed that the two methods were not antagonistic, but he could not agree with some other of Mr. Stoney's conclusions. He had used the instrument, and found it difficult to insert; it was often very painful on account of the pressure and the uncomfortable position; and he was not satisfied with the accuracy of its results. It was an excellent instrument with a healthy bladder, but they must be certain that the bladder was healthy, otherwise the results would be falsified. It should be used in conjunction with the cystoscope. The segregator was very good for its own particular work, which was very limited. Luys himself had since invented an instrument for catheterising ureters.

Dr. STOKES said he had formerly spoken against the in-

strument, but he had since found that his difficulties were due to his own inexperience.

MR. STONEY, in reply, agreed with Mr. Gunn as to the uselessness of the instrument in cases of disease of the bladder; but in cases of extensive trouble of the kidney, where there was no bladder disease, he considered it of very considerable use. It was not, of course, to be advocated in opposition to other methods. He might mention that if too much methylene blue was injected it would fill the pouch and overflow to the other side, and so escape on both sides.

*The Treatment of Chronic Urethritis by Use of Ointments in the Urethra and Presentation of a New Instrument for the application of same.*

MR. ANDREW CHARLES said the ordinary routine of patients injecting aqueous solutions is in many instances fraught with failure, due (1) to inability of the patient to inject effectively; (2) to the fact that the injections have not sufficient time to act; (3) to uncertainty that the solutions are brought into contact with the entire inflamed surface of the urethra; and (4) the glandular orifices may be obstructed with plugs of mucus which do not allow the fluids to penetrate. Oleaginous preparations, according to Janet, adhere to the surface of the urethra, are moulded into the folds, and become incorporated with the mucus and enter into contact with the mucosa, thus permitting a prolonged action of the drug. Lanoline is the best basis to use, as it has the power of taking up aqueous secretions and adheres better to the mucous membrane of the urethra. Urination evacuates the ointment only in small particles for as long as thirty-six hours (Finger). The instrument which Mr. Charles has suggested for the application of ointments combines mechanical effects, and at the same time applies an ointment effectively to the urethral surface. It possesses the following advantages:—(1) Simplicity; (2) it can be easily cleaned; (3) the urethral surface is completely covered with a large quantity of sterile ointment; (4) the urethra can be massaged on the surface of the instrument, so that the ointment can be forced into the folds of the urethra and into the ducts of the gland; (5) it acts as a dilator.

SECTION OF STATE MEDICINE.

President—E. J. McWEENEY, M.D., F.R.C.P.I.

Sectional Secretary—W. A. WINTER, M.D., F.R.C.P.I.

*Friday, February 3, 1911.*

THE PRESIDENT in the Chair.

*Medical Inspection of Schools and Scholars.*

MR. STORY read a paper on this topic. [It will be found at page 241.]

THE PRESIDENT said it must be borne in mind that we have not the same machinery for the management of our schools in Ireland which they have in England. He thought that medical inspectors for the schools should be introduced as soon as possible. He had often remarked the extreme frequency of vermin amongst the poorer classes which vermin he considered gave entrance to staphylococcal infection. With reference to the prevalence of ringworm, he said this should be treated not by a single bath or towel for a number of children, but by a separate bath and towel for each child.

DR. BOYD BARRETT said that in England the local authorities dealt with their local schools. The Irish National Board acted as a trustee, and had no power to spend its money on medical inspectors. He had read the report of a recent meeting at Paris, where representatives of all countries had assembled. This report showed the tremendous benefit which such countries as Germany, France, Russia, Holland, and even Mexico, had derived from their medical inspection of schools. He laid great stress upon the fact that children are compelled to attend schools, yet no precaution is taken to prevent the spread of infectious diseases amongst them.

DR. DONNELLY said that children or their guardians should be instructed as to the necessity for cleanliness. In a number of cases parents were not aware of the dirty condition of their children's heads, which is a decided source of danger with regard to tuberculosis. He said that children are compelled to go to school under penalty, and he considered it a cruelty that they are not protected from infectious diseases. Mr. Story had shown the small amount of money

that was necessary for medical inspectors, and if the matter was put fairly before the public he thought there would be no difficulty in getting this small rate.

DR. KIRKPATRICK said that criminal negligence was displayed in connection with school children. The schools derive their grant from the National Board of Education on the condition that the regulations of the Board are properly carried out, and he thought if the school failed to do so it should be deprived of its grant. It was a tyrannous thing that a clean and healthy child should be compelled to go to a school where half the children were suffering from infectious diseases. He believed that if this matter was urged upon the lay public they would take it up as it certainly was their duty. He thought that if compulsory inspection was not adopted compulsory education should be stopped.

SIR JOHN MOORE said that eleven years ago he sat on the Local Government Commission to inquire into the health of Dublin. As one of the Commissioners it was his duty to visit the primary schools in Dublin. He then had no idea that such dirt and insanitary surroundings existed in our schools. The Commission made very strong recommendations which turned out to be practically a dead letter. The Board of National Education was wrongly constituted. There should be a fair representation of medical men on the Board. It is most unfair that we should have no provision for safeguarding the condition of the children who go to the primary schools. These primary schools are hotbeds of infection, especially whooping-cough and measles, and neither of these diseases is notifiable.

DR. McVITTIE said a great deal had been said about infectious diseases which caused some benefit by giving immunity from these diseases in adult life. He did not consider them so serious as heart diseases. A number of children with feeble hearts are driven to school by a compulsory Act. If our object is to be gained, it is necessary for the medical profession to agitate persistently and constantly.

DR. COX said if the people do not move in the matter it is because they are ignorant, and as we claim to be better educated than they we must draw their attention to the defects by which our children labour at the present day. In America dirty children are not allowed into a public school.

MR. STORY replied.

# SANITARY AND METEOROLOGICAL NOTES.

## VITAL STATISTICS.

*For four weeks ending Saturday, February 25, 1911.*

### IRELAND.

THE average annual death-rate represented by the deaths—exclusive of deaths of persons admitted into public institutions from without the respective districts—registered in the week ended February 25, 1911, in the Dublin Registration Area and the twenty-one principal provincial Urban Districts of Ireland was 20.9 per 1,000 of their aggregate population, which for the purposes of these returns is estimated at 1,163,596. The deaths registered in each of the four weeks ended Saturday, February 25, and during the whole of that period in the several districts, alphabetically arranged, correspond to the following annual rates per 1,000. In some cases, owing to deaths not having been registered within the week in which they occurred, the rates do not fairly represent the weekly mortality :—

TOWNS, &c.	Week ending				Average Rate for 4 weeks	TOWNS, &c.	Week ending				Average Rate for 4 weeks
	Feb. 4	Feb. 11	Feb. 18	Feb. 25			Feb. 4	Feb. 11	Feb. 18	Feb. 25	
22 Town Districts	19.6	24.1	22.7	20.9	21.8	Lisburn -	9.1	22.7	40.9	22.7	23.8
Armagh -	13.7	34.4	6.9	13.7	17.2	Londonderry	14.3	20.2	29.7	22.6	21.7
Ballymena	14.4	38.3	14.4	19.2	21.6	Lurgan -	22.1	17.7	48.7	26.6	28.8
Belfast -	16.8	19.1	19.5	18.5	18.5	Newry -	8.4	25.2	37.8	29.4	25.2
Clonmel -	46.2	15.4	61.5	5.1	32.0	Newtownards	17.2	17.2	45.8	11.4	22.9
Cork -	20.5	27.4	25.3	24.7	24.5	Portadown	15.5	20.7	10.3	31.0	19.4
Drogheda -	8.2	16.3	4.1	28.6	14.3	Queenstown	13.2	33.0	19.8	—	16.5
Dublin - (Reg. Area)	24.1	27.4	25.5	23.8	25.2	Sligo -	4.8	76.8	28.8	33.6	36.0
Dundalk -	23.9	19.9	8.0	23.9	18.9	Tralee -	10.6	15.9	10.6	10.6	11.9
Galway -	15.5	15.5	15.5	19.4	16.5	Waterford	19.5	33.1	23.4	13.6	22.4
Kilkenny -	29.5	29.5	4.9	29.5	23.3	Wexford -	9.3	23.3	14.0	18.7	16.3
Limerick -	20.5	24.6	10.9	9.6	16.4						

The deaths (excluding those of persons admitted into public institutions from without the respective districts) from certain epidemic diseases registered in the 22 districts during the week ended Saturday, February 25, 1911, were equal to an annual rate of 1.1 per 1,000, the rates varying from 0.0 in seventeen of the districts to 4.8 in Sligo, the 7 deaths from all causes for that district including one from diarrhœa. Among the 141 deaths from all causes registered in Belfast are one from scarlet fever and one from whooping-cough. Of the 19 deaths from all causes registered in Londonderry one is from whooping-cough, and included in the 36 deaths from all causes registered in Cork is one from whooping-cough.

### DUBLIN REGISTRATION AREA.

The Dublin Registration Area consists of the City of Dublin as extended by the Dublin Corporation Act, 1900, together with the Urban Districts of Rathmines, Pembroke, Blackrock, and Kingstown. The population of this area is 407,057, that of the City being 313,526, Rathmines 37,528, Pembroke 29,368, Blackrock 9,013, and Kingstown 17,622.

In the Dublin Registration Area the births registered during the week ended Saturday, February 25, 1911, amounted to 214—109 boys and 105 girls; and the deaths to 195—106 males and 89 females.

### DEATHS.

Omitting the deaths (numbering 9) of persons admitted into public institutions from localities outside the Area, the annual rate of mortality was 23.8 per 1,000. During the eight weeks ending with Saturday, February 25, the death-rate averaged 24.3, and was 1.5 below the mean rate for the corresponding portions of the ten years 1901-1910.

The total deaths (195) included 3 deaths from measles, 7 from whooping-cough, 2 deaths from scarlet fever, 2 from enteric fever, 2 from diphtheria, and 4 deaths of children under 2 years of age from diarrhœa and enteritis. Influenza caused 7 deaths. In each of the three preceding weeks deaths from measles had been 2, 2, and 2; deaths of children under 2 years of age from diarrhœa and enteritis had been 7, 5, and 4; deaths from influenza had been 3, 4, and 5; deaths from scarlet fever had been 0, 4, and 6; deaths from enteric fever had been 3, 2, and 2; deaths

from diphtheria had been 5, 2, and 3; and deaths from whooping-cough had been 4, 3, and 6, respectively.

Of 21 deaths from pneumonia (all forms) there were 13 deaths from broncho-pneumonia, one death from epidemic pneumonia, 2 deaths from lobar pneumonia, and there were 5 deaths from *pneumonia* (not defined).

The deaths (25) from all forms of tuberculous disease included 18 from pulmonary tuberculosis, 3 from tubercular meningitis, 3 from abdominal tuberculosis, and one death from disseminated tuberculosis. Deaths from all forms of tuberculous disease in the three preceding weeks had been 23, 33, and 30, respectively.

Prematurity was the cause of the deaths of 3 infants, and congenital debility caused 4 deaths.

Six deaths were caused by cancer, and *convulsions* was the cause of the deaths of 4 infants.

Diseases of the heart and blood vessels caused 21 deaths, and bronchitis caused 27 deaths.

Of 5 deaths caused by accident or negligence, 2 were by burns or scalds, one of an infant aged 7 months, and one of a child aged 9 years; there was one death by drowning, and one death of an infant by suffocation in bed.

In four instances the cause of death was "uncertified," there having been no medical attendant during the last illness. These cases include the deaths of 3 infants under one year old.

Forty-seven of the persons whose deaths were registered during the week were under 5 years of age (31 being infants under one year, of whom 11 were under one month old), and 52 were aged 65 years and upwards, including 42 persons aged 70 and upwards; among the latter were 23 aged 75 and upwards, of whom one (a female) was stated to have been aged 93 years.

The Registrar-General points out that the names of the cause of death printed above in italics should be avoided whenever possible in Medical Certificates of the Cause of Death.

## STATE OF INFECTIOUS DISEASE IN THE DUBLIN REGISTRATION AREA AND IN BELFAST.

The usual returns of the number of cases of infectious diseases notified under the "Infectious Diseases (Notification) Act, 1889," and the "Tuberculosis Prevention (Ireland) Act, 1908," as set forth in the following table, have been furnished by Sir Charles A. Cameron, C.B., M.D., Medical Superintendent Officer of Health

for the City of Dublin; Mr. Fawcett, Executive Sanitary Officer for Rathmines and Rathgar Urban District; Mr. Manly, Executive Sanitary Officer for Pembroke Urban District; Mr. Heron, Executive Sanitary Officer for Blackrock Urban District; by the Executive Sanitary Officer for Kingstown Urban District; and by Dr. Bailie, Medical Superintendent Officer of Health for the City of Belfast.

TABLE SHOWING THE NUMBER OF CASES OF INFECTIOUS DISEASES notified in the Dublin Registration Area (viz.—the City of Dublin and the Urban Districts of Rathmines and Rathgar, Pembroke, Blackrock, and Kingstown), and in the City of Belfast, during the week ended February 25, 1911, and during each of the preceding three weeks. An asterisk (\*) denotes that the disease in question is not notifiable in the District.

CITIES AND URBAN DISTRICTS	Week ending	Small-pox	Measles	Rubella, or Epidemic Rose Rash	Scarlet Fever	Typhus	Relapsing Fever	Diphtheria	Membranous Croup	Pyrexia (origin uncertain) <sup>a</sup>	Euteric or Typhoid Fever	Erysipelas	Puerperal Fever	Whooping-cough	Cerebro-spinal Fever	Ulcerular Phthisis ( <i>Phthisis</i> )	Total
City of Dublin	Feb. 4	-	•	•	25	-	-	9	-	-	15	8	-	•	1	9	67
	Feb. 11	-	•	•	42	-	-	17	-	2	22	16	-	•	•	18	117
	Feb. 18	-	•	•	32	-	-	24	-	4	16	6	-	•	•	10	92
	Feb. 25	-	•	•	18	-	-	18	-	1	8	11	-	•	•	11	67
Rathmines and Rathgar Urban District	Feb. 4	-	•	•	-	-	-	-	-	-	-	-	-	•	•	•	1
	Feb. 11	-	•	•	1	-	-	1	-	-	1	1	-	•	•	•	4
	Feb. 18	-	•	•	-	-	-	1	-	-	-	-	-	•	•	•	1
	Feb. 25	-	•	•	2	-	-	2	-	-	2	-	-	•	•	•	6
Pembroke Urban District	Feb. 4	-	4	-	-	-	-	-	-	1	-	-	-	2	-	-	7
	Feb. 11	-	1	-	-	-	-	1	-	-	-	-	-	2	-	-	10
	Feb. 18	-	1	1	-	-	-	-	-	-	-	-	-	4	-	-	6
	Feb. 25	-	6	1	4	-	-	-	-	-	1	-	-	3	-	-	15
Blackrock Urban District	Feb. 4	-	•	•	-	-	-	1	-	-	-	-	-	•	-	•	1
	Feb. 11	-	•	•	2	-	-	-	-	-	-	-	-	•	-	•	2
	Feb. 18	-	•	•	2	-	-	-	-	-	-	-	-	•	-	•	2
	Feb. 25	-	•	•	2	-	-	2	-	-	-	-	-	•	-	•	4
Kingstown Urban District	Feb. 4	-	•	•	-	-	-	-	-	-	-	-	-	•	•	-	-
	Feb. 11	-	•	•	-	-	-	-	-	-	-	-	-	•	•	-	-
	Feb. 18	-	•	•	1	-	-	-	-	-	-	1	-	•	•	-	2
	Feb. 25	-	•	•	3	-	-	-	-	-	-	-	-	•	•	1	4
City of Belfast	Feb. 4	-	•	•	11	-	-	3	-	-	1	2	-	•	-	22	39
	Feb. 11	-	•	•	21	-	-	6	-	-	2	3	-	•	-	19	51
	Feb. 18	-	•	•	6	-	-	6	-	-	1	3	1	•	-	21	38
	Feb. 25	-	•	•	16	-	-	7	-	-	-	5	-	•	-	13	41

<sup>a</sup> Continued Fever.

#### CASES OF INFECTIOUS DISEASES UNDER TREATMENT IN DUBLIN HOSPITALS.

During the week ended February 25, 1911, 25 cases of measles were admitted to hospital, 12 were discharged, there were 3 deaths, and 46 cases remained under treatment at its close.

One case of small-pox was discharged from hospital during the week, and no case remained under treatment in hospital at the close of the week.

Nineteen cases of scarlet fever were admitted to hospital, 15 were discharged, and 112 cases remained under treatment at the close of the week. This number is exclusive of 20 convalescents from the disease under treatment in Beneavin, Glasnevin, the Convalescent Home of Cork Street Fever Hospital. At the close of the 3 preceding weeks the cases in hospital had been 98, 116, and 108 respectively.

Fifteen cases of diphtheria were admitted to hospital, 6 were discharged, and there was one death. The cases in hospital, which, at the close of the 3 preceding weeks had numbered 76, 62, and 87, respectively, were 95 at the close of the week under notice.

Fourteen cases of enteric fever were admitted to hospital during the week, 3 were discharged, and 101 cases remained under treatment in hospital at the close of the week, the respective numbers in hospital at the close of the three preceding weeks being 70, 71, and 90.

In addition to the above-named diseases, 6 cases of pneumonia were admitted to hospital, 12 were discharged, there was one death, and 36 cases remained under treatment at the end of the week.

## ENGLAND AND SCOTLAND.

The mortality in the week ended Saturday, February 25, in 77 large English towns, including London (in which the rate was 16.3), was equal to an average annual death-rate of 16.2 per 1,000 persons living. The average rate for 8 principal towns of Scotland was 17.4 per 1,000, the rate for Glasgow being 17.2, and for Edinburgh 15.4.

## INFECTIOUS DISEASE IN EDINBURGH.

The Registrar-General has been favoured by A. Maxwell Williamson, M.D., B.Sc., Medical Officer of Health for Edinburgh, with a copy of his Return of Infectious Diseases notified during the week ended February 25. From this report it appears that of a total of 63 cases notified, 27 were of scarlet fever, 10 of phthisis, 13 of diphtheria, and 13 of erysipelas.

Among the 453 cases of infectious diseases in hospital at the

close of the week were 209 cases of scarlet fever, 49 of measles, 61 of phthisis, 14 of whooping-cough, 88 of diphtheria, 4 of enteric fever, 19 of erysipelas, and 2 of chicken-pox.

#### METEOROLOGY.

*Abstract of Observations made in the City of Dublin, Lat. 53° 20' N., Long. 6° 15' W., for the Month of February, 1911.*

Mean Height of Barometer,	-	-	-	30.088 inches.
Maximal Height of Barometer (1st, at 9 p.m.),	-	-	-	30.801 „
Minimal Height of Barometer (23rd, at 3 p.m.),	-	-	-	28.933 „
Mean Dry-bulb Temperature,	-	-	-	42.8°.
Mean Wet-bulb Temperature,	-	-	-	40.4°.
Mean Dew-point Temperature,	-	-	-	37.6°.
Mean Elastic Force (Tension) of Aqueous Vapour,	-	-	-	.230 inch.
Mean Humidity,	-	-	-	82.5 per cent.
Highest Temperature in Shade (on 21st),	-	-	-	59.1°.
Lowest Temperature in Shade (on 1st),	-	-	-	26.8°.
Lowest Temperature on Grass (Radiation) (1st),	-	-	-	24.8°.
Mean Amount of Cloud,	-	-	-	65.6 per cent.
Rainfall (on 17 days),	-	-	-	.990 inch.
Greatest Daily Rainfall (on 18th),	-	-	-	.212 „
General Directions of Wind,	-	-	-	W., S.W.

#### *Remarks.*

As regards weather, February, 1911, was sharply divided into two periods which were directly opposed to each other. In the early part of the month the atmosphere over North-Western Europe was remarkable still, and the weather was cold and misty or foggy. This was due to the persistence of a large anticyclone of unusual intensity and great staying power. In the centre of this system the barometer rose to 30.8 inches on the 1st and 2nd, Castle Bay in Barra Island off the west coast of Scotland reporting 30.85 inches at 6 p.m. of the 1st. A biting frost ushered in the month at the central British and Irish stations in connection with this anticyclone—at Llangammarch Wells, Breconshire, the thermometer fell to 13° in the screen and 6° on the grass on the 1st; and next day, and again on the 11th, Balmoral reported a minimum of 11° in the screen. In Ireland a minimum of 18° in the screen was recorded on the 1st at Markree Castle, Armagh, and Birr Castle. The cold weather lasted more or less until the 13th,

but a change to cyclonic conditions had already set in over Iceland on the 9th, and on the 10th a V-shaped secondary depression brought the first rainfall of the month to the Irish stations. At 7 a.m. of the 13th the barometer ranged from 28.60 inches and less in the North of Iceland to 30.50 inches or more in the English Channel. The remainder of the month was stormy, showery, and at times extremely mild for the time of year. A succession of deep atmospheric depressions swept across the Ocean between Iceland and the British Isles, whereas a tongue or ridge of high barometric pressure stretched south-westwards from Central Europe to the Azores. It is worthy of note that very intense cold prevailed in the south-east of Europe during the greater part of the month.

In Dublin the mean temperature ( $43.3^{\circ}$ ) was  $0.9^{\circ}$  above the average ( $42.4^{\circ}$ ). The mean dry-bulb readings at 9 a.m. and 9 p.m. were  $42.8^{\circ}$ . In the forty-seven years ending with 1911, February was coldest in 1895 (M. T. =  $34.2^{\circ}$ ), and warmest in 1903 (M. T. =  $47.5^{\circ}$ ). In 1910 the mean temperature was  $42.5^{\circ}$ .

The mean height of the barometer was 30.088 inches, or 0.233 inch above the average value for February—namely, 29.855 inches. The mercury rose to 30.801 inches at 9 p.m. of the 1st and fell to 28.933 inches at 3 p.m. of the 23rd. The observed range of atmospheric pressure was, therefore, 1.868 inches.

The mean temperature deduced from daily readings of the dry-bulb thermometer at 9 a.m. and 9 p.m. was  $42.8^{\circ}$ , or  $1.7^{\circ}$  above the value for January, 1911. Using the formula, *Mean Temp.* = *Min.* + (*Max.* — *Min.*)  $\times .50$ , the M. T. is  $43.3^{\circ}$ , compared with a thirty-five years' (1871–1905) average of  $42.4^{\circ}$ . On the 21st the thermometer in the screen rose to  $59.1^{\circ}$ —wind, S.W.; on the 1st it fell to  $26.8^{\circ}$ —wind, W. to calm. The minimum on the grass was  $24.8^{\circ}$  on the 1st.

The rainfall was only .990 inch, distributed, however, over 17 days. The average rainfall for February in the thirty-five years, 1871–1905, inclusive, was 2.010 inches, and the average number of rain-days was 15. The rainfall, therefore, was considerably below the average, whereas the rain-days were 2 in excess. In 1883 the rainfall in February was large—3.752 inches on 17 days; in 1879 also 3.706 inches fell on 23 days. On the other hand, in 1891, only .042 inch was measured on but 2 days. In 1910, 3.758 inches fell on 24 days.

Fog occurred on the 1st, 2nd, 3rd, and 8th. The amount of

cloud—65.6 per cent.—was about the average—66 per cent. High winds were noted on 14 days, and reached the force of a gale on the 16th, 18th, 21st, and 23rd. Hail fell on the 25th. Solar halos appeared on the 20th, 24th, and 26th.

The temperature reached or exceeded  $50^{\circ}$  in the screen on 11 days, and fell to  $32^{\circ}$  on 4 nights. The minima on the grass were  $32^{\circ}$  or less on 9 nights, compared with every night in 1895. The thermometer failed to rise to  $40^{\circ}$  in the screen in the daytime on the 1st and 2nd. The highest minimum was  $46.6^{\circ}$  on the 17th.

In Dublin the rainfall up to February 28th amounted to 1.628 inches on 27 days, compared with a thirty-five years' (1871–1905) average of 4.220 inches on 33 days.

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At the Normal Climatological Station in Trinity College, Dublin, Mr. C. D. Clark reports that the mean height of the barometer was 30.080 inches. The range of atmospheric pressure was between 30.790 inches at 9 p.m. of the 1st and 29.036 inches at 9 a.m. of the 23rd. The mean value of the readings of the dry-bulb thermometer at 9 a.m. and 9 p.m. was  $43.6^{\circ}$ . The arithmetical mean of the daily maximal and minimal temperatures was  $43.8^{\circ}$ . The screened thermometers rose to  $59.3^{\circ}$  on the 21st, and fell to  $27.1^{\circ}$  on the 1st. On the 1st the grass minimum was  $14.6^{\circ}$ . Rain fell on 13 days to the amount of .890 inch, the greatest fall in 24 hours being .193 inch on the 18th. The duration of bright sunshine, according to the Campbell-Stokes recorder, was 52.0 hours, of which 7.5 hours occurred on the 22nd, and 6.6 hours on the 19th. The mean daily duration of bright sunshine was 1.9 hours. The mean earth-temperatures were—at 1 ft.,  $41.2^{\circ}$ ; at 4 ft.,  $43.2^{\circ}$ . The one-foot thermometer ranged between  $37.2^{\circ}$  on the 3rd and  $45.3^{\circ}$  on the 18th. The four-feet thermometer ranged from  $42.2^{\circ}$  on the 13th to  $44.5^{\circ}$  on the 26th and 28th.

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The rainfall at Leeson Park, Dublin, is given by Dr. C. Joynt, F.R.C.P.I., as 1.027 inches on 17 days, .250 inch having been measured on the 18th.

At the Ordnance Survey Office, Phoenix Park, the rainfall was 1.381 inches on 16 days, the maximal measurement in 24 hours being .270 inch on the 18th. The total amount of sunshine was 80.5 hours, the greatest daily duration being 9.0 hours on the 19th.

At the Cheeverstown Convalescent Home for Little Children of the Poor, Clondalkin, Co. Dublin, Miss C. Violet Kirkpatrick

recorded a rainfall of 1.77 inches on 14 days, the largest fall in 24 hours being .39 inch on the 26th.

Dr. Arthur S. Goff reports that at Lynton, Dundrum, Co. Dublin, rain fell on 17 days to the amount of 1.49 inches, the greatest daily fall being .42 inch on the 26th. In the 10 years, 1901-1910, the average rainfall in February at Lynton was 2.232 inches on 15 days. The temperature in the shade ranged from 27° on the 1st to 59° on the 21st. The mean temperature in the screen was 43.8°.

Mr. George B. Edmondson recorded a rainfall of 1.14 inches on 18 days at Manor Mill Lodge, Dundrum, Co. Dublin, the largest measurement in 24 hours being .40 inch on the 26th. The mean temperature of the month was 41.8°, the shaded thermometer rising to 58° on the 18th, 21st and 27th, and falling to 25° on the 1st and 2nd.

Mrs. Olive F. Symes recorded a rainfall of 1.01 inches on 13 days at Druid Lodge, Killiney, Co. Dublin. The maximum in 24 hours was .34 inch on the 26th. The average rainfall for February at Killiney in the 24 years, 1885-1908, inclusive, was 1.752 inches on 14.2 days.

Mr. T. Bateman reports that the rainfall at The Green, Malahide, Co. Dublin, was 1.64 inches on 14 days. The greatest fall in 24 hours was .435 inch on the 26th. The mean shade temperature was 39.7°, the extremes being—highest, 55.5°, on the 21st; lowest, 20.5°, on the 11th.

The rainfall at Ardgillan, Balbriggan, Co. Dublin, measured by Captain Edward Taylor, D.L., was 2.39 inches on 16 days. This amount was .52 inch in excess of the average, and the rain-days were one in excess. The largest fall in 24 hours was .54 inch on the 18th. From January 1 to February 28, inclusive, 3.46 inches of rain fell on 28 days—the differences from the averages being—.82 inch and—5 days. The thermometers in the shade rose to 56.2° on the 21st, having fallen to 27.8° on the 1st.

At Clonsilla, Greystones, Co. Wicklow, Dr. W. Stewart Ross measured 1.59 inches of rain on 14 days, the maximum in 24 hours being .64 inch on the 26th. The mean temperature of the month was 42.9°, the extreme temperatures being 58° on the 19th, and 30° on the 3rd, and again on the 12th.

Dr. John H. Armstrong reports that at Coolagad, Greystones, Co. Wicklow, the rainfall was 1.86 inches on 15 days. The heaviest fall in 24 hours was .62 inch on the 26th.

At the Royal National Hospital for Consumption for Ireland, Newcastle, Co. Wicklow, Dr. J. T. Crowe measured 2.28 inches of rain on 14 days, the largest daily measurement being .67 inch on the 26th. The mean temperature at the Hospital was  $42.4^{\circ}$ , the extremes being—highest,  $56.5^{\circ}$  on the 18th; lowest,  $28.0^{\circ}$  on the 2nd and 3rd. The mean maximum was  $47.6^{\circ}$ , the mean minimum,  $37.2^{\circ}$ .

In the City of Cork, Mr. William Miller registered 2.37 inches of rain on 15 days, the largest measurement in 24 hours being .33 inch on the 26th. The rainfall was .80 inch below the average, and the rain-days were one in defect. During the first two months of 1911 the rainfall was 3.13 inches on 25 days, or 4.24 inches and 12 days less than the average. The thermometer in the screen rose to  $53^{\circ}$  on the 25th, and fell to  $22^{\circ}$  on the 2nd. The mean temperature was  $39.7^{\circ}$ , or  $2.7^{\circ}$  below the average for the month in 28 years.

The Rev. Arthur Wilson, M.A., returns the rainfall at the Rectory, Dunmanway, Co. Cork, at 6.25 inches on 18 days, the greatest fall in 24 hours being .78 inch on the 26th. The rainfall on the 24th was .70 inch, and that on the 27th was .62 inch. No rain fell on the first 8 days. On the last 9 days the fall was 4.21 inches. The rainfall in 1911 to February 28 amounted to 8.61 inches.

Mr. William Holbrow reports that at Derreen, Kenmare, Co. Kerry, 4.98 inches of rain were measured on 17 days. The heaviest fall was .82 inch on the 14th. Fine to the 10th, the month was stormy from the 13th to the end. Thunder occurred on the 21st. Thirteen degrees of frost were registered on the 1st and 2nd.

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#### “OPHTHALMIC LITERATURE.”

THE chief purpose of this journal, edited by Drs. Edward Jackson and William H. Crisp, Denver, Colorado, U.S.A., is to render the current literature of ophthalmology directly available to those engaged in ophthalmic practice, by publishing at the beginning of each month a classified topical index of ophthalmic publications that have come to hand during the preceding month from all parts of the world. We have no doubt the journal will be a most valuable assistance to all who wish to look up the most recent articles on any subject.

## PERISCOPE.

### THE IRISH MEDICAL SCHOOLS AND GRADUATES ASSOCIATION.

THE customary St. Patrick's Festival Dinner of this Association took place on the Eve of St. Patrick's Day, March 16th, in the Indian Room of the Hotel Cecil, Strand, London, W.C., Sir Charles A. Cameron, C.B., M.D., President, in the chair. The company numbered 247, and included Sir Thomas Barlow, Bart., K.C.V.O., President of the Royal College of Physicians of London; Sir James Dewar, F.R.S.; Sir James Crichton-Browne, Dr. George Savage, and a number of ladies. Dr. Macnaughton-Jones, in proposing the toast of "The Colleges," gave an interesting sketch of the origin of the respective Corporations in the three divisions of the kingdom, and their relations to the different chartered bodies which had previously existed. The earliest incorporation was that of the Irish Guild of Barbers in 1446, though in 1308 a Company of Barbers existed in London, and the earliest incorporated Royal College was that of Edinburgh in 1505, closely followed by the English College in 1518. In touching on the history of the Royal College of Surgeons in Ireland, he urged the injustice it suffered through the altered conditions of education in Ireland which had followed on recent legislation. The endowments by the State of competing institutions had placed the College at an unfair disadvantage. The depleted funds of the College hampered the efforts of its School to keep pace with modern medical advance, and so to prevent students going elsewhere for qualifications to schools, the resources of which enabled them to offer greater attractions. Consequently, numbers left Ireland to study and qualify elsewhere, who would otherwise have preferred the Diploma of the Irish College. Also, the grants to the new National University, and its affiliated colleges, placed the School of the Royal College of Surgeons and its teachers at a great disadvantage in competition with the Schools of that University. There were precedents for a State endowment, for from 1784 to 1808 the Irish College had received nearly £30,000 through State grants. The Royal College of Surgeons of England, when the matter was brought before its Council, had been most sympathetic, and

under the Presidency of Sir Henry Morris, had responded in warm terms, expressing its hope that this just complaint might be rectified. He (Dr. Macnaughton-Jones) trusted that the promise of the Premier would be kept—that if it should prove that in the working of the new system, the Royal College of Surgeons in Ireland suffered, the Treasury would not be indisposed to consider favourably the application of the College to place it in a satisfactory position. His old friend, the Chairman, might take back to his parent College in Dublin the assurance of the undiminished loyalty and reverence of the members of the Irish Medical Schools and Graduates Association, both in London, and throughout the provinces, and their willingness at all times to do everything in their power when called upon to assist it.

#### HOW TO PREVENT ANAPHYLAXIS.

DRS. MINET AND LECLERCQ, who have made a special study of the condition of anaphylaxis, find that the anaphylactic toxin is very fragile and can be destroyed, or at any rate disappears from a mixture of horse-serum and blood from a guinea-pig immunised against horse-serum by keeping it *in vitro* for six hours at the ordinary temperature of the laboratory. If the mixture is then injected into a fresh guinea-pig it is not sensitised passively—that is to say, the animal is not affected by an injection of horse-serum on the following day; but it is sensitised actively—that is, at the end of a fortnight an injection of horse-serum produces severe symptoms of anaphylaxis. The authors conclude from this that by keeping the mixture *in vitro* for six hours the toxogenin disappears, but the substance that excites active sensitisation remains. In the same way, by keeping a mixture of guinea-pig's blood immunised against diphtheria and anti-diphtheritic serum *in vitro* for six hours the anaphylactic poison is destroyed. The practical result of these findings is that if it is desired to re-inject an antigen or antitoxic serum into an animal already sensitised, as in the case of repeated injections of anti-diphtheritic serum in cases of diphtheria, in order to prevent the occurrence of anaphylactic symptoms, the animal or subject should be bled just to the amount of serum to be injected and the two mixed together in equal quantities and kept *in vitro* for six hours. If the mixture be then injected no anaphylactic symptoms should result.—*The Hospital*, March 18, 1911.

## NEW PREPARATIONS AND SCIENTIFIC INVENTIONS.

### *Carrick's Liquid Peptonoids with Creosote.*

THE recognised difficulty of exhibiting creosote in an agreeable and bland form is admirably overcome in this new preparation. It is a combination of beechwood creosote and guaiacol with the well-known Carrick's Liquid Peptonoids, based on the principle of administering the therapeutic principle in a dialysed nutrient base. Each fluid ounce yields—

Beechwood creosote	-	-	m iv
Guaiacol	-	-	m ij
Peptones and albumoses	-	-	6.25 per cent.
Maltose and dextrose	-	-	12.00 „
Salts (chiefly phosphate)	-	-	1.35 „

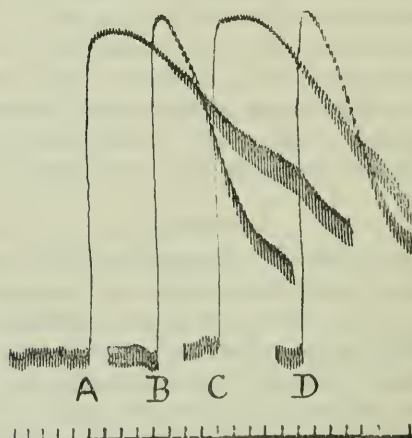
The outstanding features of the compound are undoubtedly its *palatability* and the fact that its administration is followed by no eructation or peptic disturbance. It is not a simple *mixture* of the drug with the nutrient menstruum, but its smoothness and non-irritant nature are due to the employment of a special vehicle by means of which a combination is effected in such a way that the nauseous taste of the creosote is removed and the disagreeable effects are prevented. Not only is the action of the creosote rendered certain and harmless, but the compound renders valuable service as a ready source of nutrient reinforcement. It is indicated specially in gastric and intestinal fermentation and flatulency and in general pulmonary disease. The dose is for adults one to two tablespoonfuls three to six times daily ; for children in proportion.

### *“Epinine.”*

SINCE the introduction into therapeutics of the active principle of the supra-renal gland, now so widely used, many attempts have been made to produce a synthetic substance which should possess similar physiological properties and at the same time be free from certain disadvantages of the natural principle. Among the workers in this field have been Messrs. Burroughs, Wellcome & Co., who now announce the issue of a synthetic product to which the name “Epinine” has been given. This substance, which, chemically, is 3:4 dihydroxyphenylethylmethylamine, was discovered at the “Wellcome” Chemical Works, and is stated to

possess all the valuable physiological properties of the supra-renal principle, with some additional advantages. The most important of these latter are that it is much more stable than the supra-renal principle, and, being a synthetic preparation, is more easily obtained in a state of purity. By physiological tests, "Epinine" has been proved to produce all the characteristic effects of the supra-renal principle on the blood-pressure, heart's action, uterus, &c. Quantitatively it has been found that 1 in 100 solutions of "Epinine" are equal in activity to 1 in 1,000 solutions of supra-renal active principle. The rise in blood-pressure produced by "Epinine" is, however, more prolonged than is the case with rises of equal height due to the supra-renal principle. "Epinine" is issued in the strength of 1 in 100, in bottles of 10 and 25 c.c., and also as a sterile solution, in the convenient "Vaporole" containers. The clinical trials which "Epinine" has undergone indicate that it is in all respects equal to the supra-renal preparations, while its greater keeping power is, of course, a point of marked superiority. The accompanying kymographic tracings show the rise of blood-pressure caused, respectively, by Epinine and Hemisine.

TRACINGS SHOWING RISE OF BLOOD PRESSURE CAUSED BY "EPININE"  
AND "HEMISINE."



A & C = 0.5 mgm. 3 : 4 Dihydroxyphenylethylmethylamine ("Epinine.")  
B & D = 0.05 mgm. Suprarenal active principle ("Hemisine.")

Note equal height of A C and B D, but greater persistence of A C.

# THE DUBLIN JOURNAL

OF

## MEDICAL SCIENCE.

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MAY, 1, 1911.

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### PART I.

#### ORIGINAL COMMUNICATIONS.

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ART. XIII.—*Cheyne-Stokes' Breathing*. By JAMES LITTLE, M.D. Edin. and Dubl., LL.D.; one of the Honorary Physicians to the King in Ireland; Regius Professor of Physic, University of Dublin; Physician to the Adelaide Hospital.

CASE.—A man, seventy-one years of age, was admitted to the Adelaide Hospital on the 28th of February, 1911, and died on the 14th March. He manifested during the whole of this period Cheyne-Stokes' breathing in a very typical form.

He was a big man, with a very florid face. He was a car-driver, and, as far as we could make out, he had been a fairly temperate man, but always took stout and whisky to some extent. For years he had been subject to winter cough, but otherwise he appeared to have enjoyed good health until six months ago, when he began to suffer from breathlessness. Five weeks before admission he got chilled, and next day his feet and legs were swollen. When admitted to the Adelaide he was bothered and confused, the least exertion made him breathless; he passed less than a pint of urine in twenty-four hours, and indeed towards the end of life passed only eight or ten ounces in the day and

night. It had a specific gravity of 1020, and was densely albuminous.

His hands and feet were deadly cold, and yet he kept throwing off the clothes, and when allowed up would not sit near the fire, but was always asking for the windows to be opened.

As I have said, during his stay in hospital he showed Cheyne-Stokes' breathing in a typical form. At first the apnœal period lasted about twenty seconds and the ascending and descending breathing about thirty-five. He generally fell asleep during the apnœa, but roused up when the respiration again began. The pulse was slower during the breathing period and more frequent during the apnœa. Several times when I counted it I found during fifteen seconds of the ascending and descending breathing fifteen systoles, while there were eighteen during fifteen seconds when breathing was arrested. Towards the end of life the apnœal period persisted for thirty-eight seconds and the ascending and descending breathing for forty. At night, when more soundly asleep, the characteristic apnœa and dyspnœa persisted.

Treatment was of little avail. After two or three days' confinement to bed the swelling left his feet and legs, but no drugs produced any increase in the urine. Iodide of potassium failed to relieve his breathing. The inhalation of oxygen, perhaps, did very temporary good. The combination which is known in the hospital as the cardiac mixture<sup>a</sup> comforted him, and an hour or two of sleep always followed the injection of a sixth of a grain of morphia with one two-hundredth of a grain of atropia.

When Dr. Scott opened the body about a pint of fluid was found in each pleural sac. The lungs were voluminous and emphysematous. The heart was covered by an unusually thick layer of fat. The walls of both right and left ventricles were about twice their ordinary thickness. The ventricles were somewhat dilated. To the naked eye the muscle

<sup>a</sup> Each dose contains—

Liq. Nitro-glycerini, ℥ i.

Sp. Ammoniac aromatis.

Sp. Ætheris nitrosi.

Sp. Ætheris, ana ℥ xxx.

Aq. Ment. piperitæ, ad ʒ i.

seemed healthy. The aortic valvules and the ascending and descending aorta were somewhat atheromatous; there were no calcareous plates, but the lining membrane was studded with patches of atheromatous thickening, the mouths of the coronary vessels were not narrowed; the vessels themselves were patulous. The mitral valve showed a few spots of commencing atheroma.

The liver was considerably enlarged, and its section was paler than normal, and the organ cut like one in the stage of hypertrophic cirrhosis. The kidneys were very small and rough on the surface, their capsules were thickened. The organs were unusually dense, the cortical structure was narrowed, and the section was dark.

I fear all we know about Cheyne-Stokes' breathing is that it is a very striking phenomenon, not often seen, and seldom seen unless towards the close of life.

MacKenzie quotes a passage from the works of John Hunter showing that he had observed it. His words are :—" A gentleman had a singular asthmatic affection, and his breathing gradually stopped, and again gradually recurred, but became violent, and then constantly and alternately held two or three minutes, and when the breathing ceased yet he spoke although but faintly." John Hunter's observation does not appear to have attracted notice, and it was not until 1816 that Dr. Cheyne drew attention to this curious symptom. In the second volume of the " Dublin Hospital Reports " he describes the case of a gentleman who had been under his care for breathlessness. He got a paralytic seizure, after which he lived only eight days, but during this time he exhibited the symptom we are now considering. Cheyne's words are :—" The only peculiarity in the last period of his illness, which lasted eight or nine days, was in the state of the respiration : For several days his breathing was irregular : it would entirely cease for a quarter of a minute, then it would become perceptible, though very low, then by degrees it became heaving and quick, and then it would gradually cease again : this revolution in the

state of his breathing occupied about a minute, during which there were about thirty acts of respiration.”<sup>a</sup>

I may mention that some years ago I saw a curiously similar case. A woman was suffering from heart disease, but did not exhibit Cheyne-Stokes' breathing until she had a slight paralytic attack.

Dr. Stokes, in his work on “Diseases of the Heart,” published in 1854, describes the symptoms in greater detail, and says he has met with it only in cases of fatty degeneration of the heart. His words are worth reading:—

“But there is a symptom which appears to belong to a weakened state of the heart, and which, therefore, may be looked for in many cases of the fatty degeneration. I have never seen it except in examples of that disease. The symptom in question was observed by Dr. Cheyne, although he did not connect it with the special lesion of the heart. It consists in the occurrence of a series of inspirations, increasing to a maximum, and then declining in force and length, until a state of apparent apnœa is established. In this condition the patient may remain for such a length of time as to make his attendants believe that he is dead, when a low inspiration, followed by one more decided, marks the commencement of a new ascending and then descending series of inspirations. This symptom, as occurring in its highest degree, I have only seen during a few weeks previous to the death of the patient. I do not know any more remarkable or characteristic phenomena than those presented in this condition, whether we view the long-continued cessation of breathing, yet without any suffering on the part of the patient, or the maximum point of the series of inspirations, when the head is thrown back, the shoulders raised, and every muscle of inspiration thrown into the most violent action;

<sup>a</sup> “The same description of breathing was observed by me in a relative of the subject of this case, who also died of a disease of the heart, the exact nature of which however I am ignorant of, not having been permitted to examine the body after death.”

yet all this without rôle or any sign of mechanical obstruction. The vesicular murmur becomes gradually louder, and at the height of the paroxysm is intensely puerile.

“ The decline in the length and force of the respirations is as regular and remarkable as their progressive increase. The inspirations become each one less deep than the preceding, until they are all but imperceptible, and then the state of apparent apnœa occurs. This is at last broken by the faintest possible inspiration; the next effort is a little stronger, until, so to speak, the paroxysm of breathing is at its height, again to subside by a descending scale.”

When I began practice this was accepted as the fact. Ascending and descending breathing was regarded as a pathognomonic sign of fatty degeneration of the heart.

In the year 1867 there was an Italian under Dr. Head's care in the Adelaide Hospital. He had markedly the physical signs of aortic regurgitation. I remember the man perfectly, as he was the first patient in whose case we ventured to use the hypodermic injection of morphia for the relief of cardiac distress. The examination of his body was made by Alexander MacAlister, then an assistant surgeon to the Adelaide. He did not find any fatty degeneration of the heart, but discovered fatty degeneration of the diaphragm, and Dr. Head read a paper before the Medical Society associating the ascending and descending breathing with this change.

In the winter of 1867 three patients who exhibited ascending and descending breathing, and who were under my care, died in the hospital. In the first, distinct fatty degeneration of the heart was found; in the second, a coachman, aged seventy-two, there was an atheromatous condition of the aorta and hypertrophy of the left ventricle; in the third, the pathological change was very similar, a dilated and atheromatous arch and an hypertrophied left ventricle, but Dr. MacAlister reported the muscular wall of the heart free from fatty change.

On the strength of those cases I read a paper at a meet-

ing of the Medical Society putting forward a theory of the causation of ascending and descending breathing. With some trouble I found a copy of this paper, which I had not seen for thirty years. I had entirely forgotten the explanation I then offered. It seemed to have commended itself to others as well as to myself, for a translation of it appeared in one of the German medical journals.

Walshe states that ascending and descending breathing is met with perfectly developed only in fatty metamorphosis of the heart, but considers that it may appear in any case in which there is marked enfeeblement of the organ, and that the proximate cause lies in an anæsthesia of the vagus or of the medulla itself.

MacKenzie says that it is when we have cardio-sclerosis and high blood pressure that we commonly meet with Cheyne-Stokes' breathing. He does not offer any explanation of the symptom.

Howell<sup>a</sup> says that while it is met with in fatty degeneration, arterio-sclerosis, and uræmia, it specially occurs when there is increased intracranial pressure. "When the blood pressure falls below intracranial pressure there is a condition of deep anæmia of the medulla sufficient to suspend the activity of the respiratory centre. The following rise of blood pressure by forcing more blood through the medulla calls forth a group of respiratory movements," and as supporting his contention he refers to the observations of Pembury, who found that during the dyspnœa the percentage of carbonic acid in the alveolar air is markedly diminished, and in his opinion the apnœa is due entirely to the removal of this, the normal stimulus to the respiratory centre. In many points the explanation I offered so many years ago<sup>b</sup> is founded on the same premises.

"It occurred to me to ask what do these two morbid conditions under which the symptom has been observed possess in common. In the one the fleshy portion of the

<sup>a</sup> Text Book of Physiology. Third edition, page 686.

<sup>b</sup> DUBLIN QUARTERLY JOURNAL OF MEDICAL SCIENCE, August, 1868.

left ventricle is atrophied, and has lost almost entirely the endowments of muscular fibre; in the other it is hypertrophied, and possesses to an abnormal degree muscular power, but in relation to the work each has to perform they may be equally incompetent—the fatty ventricle, in consequence of the degeneration of its own structure; the hypertrophous, in consequence of the increased obstacles which are in front of it.

“In health the right and left ventricles, though differing so much in the thickness of their walls, are equally competent for their duties, the right is able to fill the pulmonary capillaries as thoroughly as the left, with the aid of the other forces which contribute to the circulation, fills the systemic; but if an abnormal burden is imposed on the left, if rigid valves narrow its outlet, or permit the blood it discharges at each systole to fall back into its cavity, or if the arterial coats, their elasticity destroyed by disease, no longer help the heart, if the aorta instead of taking charge of each wave of blood as it leaves the ventricle, and propelling it onward by the steady recoil of its walls, is permanently dilated, and allows each portion of blood to remain in its ascending trunk, and so to impede the entrance of that which follows—under any of these conditions the left heart, however hypertrophied, may be quite unable to rid itself of the blood as rapidly as it is supplied to it by the right ventricle. Blood would, therefore, accumulate in the left auricle, in the pulmonary veins, and in the capillaries of the lungs. That blood, having already absorbed as much oxygen as it required, would fail to produce that impression on the ultimate filaments of the pneumogastric which black blood does, and which impression is converted by the nervous centres into the motor impulse which produces breathing. Breathing would, therefore, cease, and inasmuch as the respiratory act seems to assist in carrying the blood to the left side of the heart, it would no longer be so overstimulated by fresh supplies, and its contractions would become less frequent and more regular. After a few

systoles, however, it would succeed in discharging the red blood collected in its cavities to such an extent that they could receive some of that which lay in the pulmonary veins and lungs. Space being thus gained, the black blood which the pulmonary artery contained would reach the capillaries of the lungs in amount proportionate to that of the arterial which had gone forward, and sufficient air would be drawn into the chest to aërate so much blood. That very act would carry forward a still larger charge of arterial blood to the left side, and make room for the reception, by the lungs, of a still further increase of venous blood, and, as a consequence, a still deeper inspiration would follow, and the deepest would occur when the largest quantity of venous and the smallest quantity of arterial blood lay in the lungs. The red blood, reaching the left heart, would excite it to those frequent and irregular contractions which accompany the respiratory distress, but frequent and irregular they would be also ineffectual, red blood would begin again to accumulate in the left heart, the pulmonary veins, and the lungs, till at last their capillaries would contain little else, and the exciting cause of inspiration, the venous blood, being no longer present, the act itself would again cease."

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ART. XIV.—*Tetany*<sup>a</sup>; with an Illustrative Case. By  
C. W. CHESTER MYLES, B.A.

IX considering the subject of Tetany we are dealing with a disease about which there is a wide difference of opinion amongst medical men, and one which, because of its comparative rarity, has not, as yet, got beyond the experimental stage so far as its treatment is concerned.

It is characterised by tonic muscular spasms involving especially the distal portions of the limbs, but in severe cases extending to the trunk, neck, face, eyes or larynx.

<sup>a</sup> A Communication read before the Dublin University Biological Association, December 8, 1910.

It is usually bi-lateral, and the spasms may be either paroxysmal or continuous.

But even its essential characteristics are not agreed upon. Some writers distinguish adult and puerile forms; others totally deny its existence in early childhood; others draw a distinction between "true tetany" and what they call "pseudo-tetany." Again, some regard increased irritability of muscles and nerves to mechanical and electrical stimuli as a distinguishing feature; others do not consider this essential. It is best, I think, to conclude that there is a wide variation in degree of severity ranging from the mild carpo-pedal contractions of rickety children to general spasms, which may in severity almost simulate tetanus. Spasmodic ergotism is sometimes considered as a variety of tetany; but two considerations, I think, are opposed to this—viz., the different nature of the degenerative changes in the nervous system and the fact that the condition is due to a definite drug, for, as we shall see later, no definite toxin of tetany has yet been isolated.

The condition of tetany was described nearly one hundred years ago, but its present name was not used for another forty years. The number of names by which it has been known at various times is, indeed, almost in inverse ratio to the extent of our knowledge about it. Amongst others, Horsley by experimental and Kocher by surgical investigation showed the relation between tetany and disease of the thyroid gland, while Weiss first drew attention to it as a result of complete removal of the thyroid.

Tetany occurs at all periods of life, but chiefly in children and young adults. On the whole, it is slightly more frequent in males than in females. In early childhood the great majority of cases are males, while after twenty years of age the reverse is the case. Some families show a peculiar liability to it, several members being affected, but it is seldom hereditary. Its geographical distribution is very irregular. In Vienna it is

found about seven times in every one thousand nervous cases, and it is also very common, comparatively speaking, in Heidelberg. In these islands, as in America and Northern Germany, it is very rare, while in Paris, where the variety connected with pregnancy and lactation was once very common, it is now almost unknown.

The causes to which tetany has been attributed are many, and they fall naturally into the following groups :—

1. Gastro-intestinal trouble. In young people it may occur with chronic diarrhoea or persistent constipation. Cases have been recorded in association with catarrhal jaundice and intestinal worms, and in one case the spasms ceased the day after the expulsion of a tape worm. But the most usual and, at the same time, the most obstinate form is in connection with gastric dilatation. In such cases attacks have been brought on by washing out the stomach, on percussion over the epigastric region, or as the result of administering an enema. It is seldom found where there is merely lack of tone in the muscular coat, but rather along with gastric or duodenal ulcers or malignant disease.

2. It may follow complete removal of the thyroid gland; in this case the real source of the trouble is the loss of the parathyroid bodies. It has also been found in cases of atrophy of the thyroid and of myxœdema.

3. The third group—that which occurs in pregnancy and lactation—is closely allied to the thyroid group, for statistics show that the thyroid is enlarged in about 80 per cent. of pregnant women, and in the case of dogs no ill effects have been found to follow partial removal of the thyroid unless the animal happened to be pregnant, when symptoms of tetany have appeared a few days before delivery. This form of tetany was first described by Trousseau under the name “nurses’ contracture.” It appears usually during the latter half of pregnancy, while in lactation there is a latent period of from two to six months after gestation. The spasms seldom occur during

labour, but when menstruation is established again there may be a recurrence of the spasms with each period. Cases are recorded in which girls suffering from tetany experienced a spontaneous cure at the onset of their first menses.

4. Tetany sometimes follows acute fevers, particularly enteric, smallpox, scarlatina, and measles. In enteric its onset is usually during convalescence.

5. Several toxic conditions may give rise to tetany. It has been found with kidney disease, with albuminuria (the two disappearing together), and in delirium tremens.

6. An epidemic form of tetany is fairly frequent in Vienna and Heidelberg. Males are principally affected, and there seems to be some connection with the occupation of the victims, as out of 399 cases investigated at one time 174 were shoemakers and 94 tailors, while 83 per cent. of the patients were between the ages of sixteen and twenty-five. In Vienna it has been noticed that epidemics occur usually in March and April.

7. Epilepsy and tetany are sometimes found together, and some think that the former may be a manifestation of the latter. Tetany is also met associated with hysteria.

8. The infantile form of tetany, which differs in some ways from the adult forms, is more common than the latter in London and also in parts of France and Germany. It usually follows gastro-intestinal trouble. A minor degree is seen in rickety children under the name of carpopedal contractions.

The changes which have been found *post-mortem* in tetany are very varied. Hyperæmia of the dura and pia mater with subarachnoid effusions at the base of the brain and softening of the brain substance, hyperæmia of the pons, medulla, upper cervical portion of the cord, and of the peripheral nerves most affected in life have been described in addition to the sclerosis of the posterior columns of the spinal cord found in cases of spasmodic ergotism. On the other hand, the peripheral nerves and muscles have sometimes been found perfectly normal.

The ganglion cells in the cord have been found shrunken and vacuolated. Weiss reports three cases following removal of the thyroid in which the cells of the anterior horn were swollen and vacuolated, and one case in which they were atrophied. In two more recent cases the changes were best marked in the cervical and lumbo-sacral portions of the cord. The meninges and outer parts of the cord were normal, but nearer the centre there was considerable rarefaction and in parts total absence of nerve fibres near the grey matter, and the grey matter, especially in the anterior horn, showed atrophy and rarefaction of the ganglion cells. The characteristic lesions, then, seem to be shown in the cells of the anterior horn, beginning with hyperæmia and swelling, and going on into atrophy and sclerosis. It must be remembered, however, that the deaths from tetany uncomplicated are very few, and the opportunity for pathological research is correspondingly limited.

As to the seat of the original trouble many views are held. Some think it begins in the muscle, others in the peripheral nerves, others, again, in the cells of the anterior horn. Gowers holds that the nerve cells of the medulla are first affected, while Weiss suspects some derangement of the sympathetic system. From their altered reaction to mechanical and electrical stimuli it seems clear that the nutrition of the peripheral nerves is altered, and the occasional association of epilepsy, hysteria, and insanity would suggest that the cerebrum may be involved.

Other pathologists have suggested some affinity between rheumatism and tetany, but this theory has been abandoned. Kussmaul, having in mind gastric dilatation, put forward a theory of increased dehydration of the blood which, though he later abandoned it, has been revived by others. From the association of gastric ulcer a theory of the presence of an excessive amount of hydrochloric acid in the gastric secretion has been suggested.

The theory now generally held is that of auto-intoxication from the decomposition and fermentation of con-

tents of dilated stomachs which have not managed to escape. One patient had the attacks stopped by the administration of an emetic, which Galliard maintained was proof that tetany is reflex, not toxic, in origin. Bouveret and Devic isolated a substance from the gastric contents of patients which, when injected into animals, caused general convulsions. Albu obtained from the urine of a patient an alkaloid which was absent in the intervals between attacks. Halliburton also contributed to this theory by a series of experiments, to which I shall refer later.

The relation between tetany and the thyroid gland has already been dealt with.

Bacteriological research and experimental inoculation of rabbits with the blood of patients have not yielded any positive result.

The occurrence of an epidemic form would seem to indicate that the disease may sometimes be infective, a view which is supported by the occasional presence of fever and hallucinations as complications.

Tetaniform convulsions are occasionally found in ergot, chloroform, and alcohol poisoning, and this, I think, supports the theory of the existence of some toxin.

Regarding infantile tetany, some consider it a direct derivative of rickets, pointing out that the curvature in rickets and tetany arise together, while phosphorus has a beneficial effect in both. Others think the truth is that similar circumstances favour the occurrence of the two.

On the whole, then, there seems to be a decided balance of opinion in favour of the toxic origin of tetany, though it cannot as yet be definitely attributed to any one substance.

Many symptoms have been described, but in very few cases have they all been found.

Before the actual muscular spasm sets in there are, as a rule, some sensory premonitions which usually take the form of a "numb," "tingling," or "burning" sensation. This may continue for as much as some hours, or even a

day, before the spasm comes on; very occasionally there may be headache and vomiting, while sometimes there may be no warning whatever.

The spasms are usually symmetrical, and commence in one extremity, usually the hands, and then pass to the other limbs, trunk, and face. Sometimes they begin on one side only and then spread to the other; at other times one side of the body only is involved, while in a few cases one arm and the opposite leg have been affected. The spasms are tonic, and the limbs become so rigid that voluntary movements are impossible. The position of the hand is very remarkable. The thumb is brought close to the index finger, the palm hollowed, and the fingers drawn close together, so that the whole hand is cone-shaped—the accoucheur's hand, as it is called; in rare cases the fingers may be partly flexed or the fist clenched. The hand is slightly inclined to the ulnar side and the wrist partly flexed. If the arm is involved, the forearm is strongly pronated, the elbow flexed, and the upper arm drawn a little forwards and inwards. In the lower limb the toes are strongly flexed and adducted, the foot arched and extended and inverted at the ankle; the knees are extended, and the thighs adducted so much that they may cross one another. On the trunk it is usually the ventral muscles which are involved; the head is bent slightly forwards, and both sterno-mastoids are usually involved. In the face the spasm of the masseters is best marked, but all the muscles are involved, and in the eyes there may be strabismus, conjugate deviation, or immobility of the pupils. The tongue and muscles of the pharynx and larynx may be affected, causing difficulty in swallowing and speaking. Facial spasms are usually found only in severe cases. If the spasm is of long duration, and larynx and pharynx are involved, there may be temporary cyanosis due to a certain amount of asphyxia, or there may even be loss of consciousness. The spasms are usually paroxysmal, and may last for anything from a few seconds to a few days, then gradually passing

off, to be repeated in a few hours or days. The relaxation is occasionally incomplete. Fibrillary contractions are sometimes visible in the muscles. Attacks have been induced in several ways—*e.g.*, by muscular effort during the period of relaxation, by washing out the stomach, by percussing the abdomen, or by steady pressure on the affected limb, so as to check the circulation and press on the nerve trunks; the evoking of spasms by this last method is known as Trousseau's sign. In the affected parts there is increased irritability of muscles and nerves to mechanical stimuli. Chvostek's sign is the contraction of the facial muscles which may be produced by a few taps over the facial nerve in the region of the stylo-mastoid foramen. Erb has demonstrated the increased excitability of nerves to both interrupted and constant currents. The order of response to the constant current is—

ACC		AOC		KCC
AOC		ACC		ACC
KCC	or	KCC	instead of	AOC
			the normal	
KOC		KOC		KOC

The contraction is somewhat more prolonged than in health, so that there is tetanus; in fact, this is the only known condition in which anodal opening tetanus has been demonstrated in man. The increased excitability to the constant current is almost always found, that to the interrupted current less frequently.

In severe cases there may be extreme cramp-like pains, usually deep-seated. Superficial pains, if present, are generally referred to the fingers or dorsum of the hand or the arch of the foot. In the intervals between spasms there may be sensations of heat or cold or "pins and needles," and there may be some blunting of sensation.

The knee-jerk is usually exaggerated, but in a few cases it has been lost. Other reflexes are usually normal.

There is often vaso-dilatation in the extremities, and a severe attack may terminate in profuse sweating.

The pulse is rather rapid, and the temperature may be a little raised, but rarely exceeds 101° F.

The urine is normal in amount, and may contain traces of albumen, sugar, acetone, or indican; children especially are liable to have indican present.

The diagnosis is seldom of difficulty if one has had the opportunity of seeing the patient in an attack, so characteristic are the spasms. This, coupled with altered response to mechanical and electrical stimuli, should be sufficient, but if Trousseau's, Chvostek's, and Erb's signs are all absolutely essential features of tetany, the disease is a very rare one indeed. But one sometimes finds an obscure or unusual case where the symptoms are either very slight or extraordinarily severe, and these may present considerable difficulty. In mild cases, especially in the early stages, the motor symptoms may be totally overlooked by the patient, whose attention is attracted only by the premonitory sensations, so that a history of muscular spasm may be very difficult to elicit. In these cases the principal aids to diagnosis—viz., Trousseau's, Chvostek's, and Erb's signs—may be absent. In such cases the subjects most likely to yield assistance in diagnosis are lactation, pregnancy, gastric trouble, and diarrhoea. In very severe cases the condition may be mistaken for tetanus; in tetanus, however, the hands and fingers usually escape, in tetany they are first affected; spasm of the masseters is an early symptom in tetanus, a late complication in tetany; in tetanus the extensors, abductors, external rotators and supinators are the groups of muscles most affected, while in tetany it is the flexors, adductors, internal rotators, and pronators, and, in addition, the spasms are intermittent.

In spinal meningitis there is usually greater fever and severe pain in the back; pain in the limbs accurately follows the course of the sensory nerves: Trousseau's, Chvostek's, and Erb's phenomena are absent—the affected parts are liable to paralysis, and the sphincters are involved.

Children are most liable to tubercular meningitis between three and five years of age, to tetany from one to three; and in the former disease there is a long premonitory stage, spasm is infrequent, and does not follow the same order as in tetany, headache and vomiting are more severe, and there may be optic neuritis or inequality of the pupils. The pulse is usually slow and somewhat irregular.

In epilepsy there is loss of consciousness, seldom found in tetany. Jacksonian epilepsy has been mistaken for tetany, but in it the convulsions are both tonic and clonic, and begin in one upper or lower limb, or on one side of the face, not on both sides at the same time. If they become general, consciousness is lost; headache and optic neuritis are usually present.

The prognosis in tetany is usually favourable, except in cases resulting from thyroidectomy and gastric dilatation. In the former, thyroid extract may be of service, but in the latter the prospect is unpromising. Of the other forms of tetany, the infantile is the most serious (owing to the low resisting power of children), especially if there are general convulsions or spasms of the glottis. In these cases there is usually severe diarrhoea, which in itself may be enough to cause death. In fatal cases the immediate cause of death in children is usually asphyxia, the result of spasmodic closure of the glottis, or pneumonia developing from the same cause. In adults death is more likely to be due to general debility resulting from the increasing virulence of the toxins. It is not easy to forecast the probable duration of the disease. Mild attacks of the continuous form usually last for a short time only, as do cases in which the spasm is prolonged over several days. Where it occurs during pregnancy it will almost certainly continue until delivery. In the event of a recurrence in subsequent pregnancies the course followed will be very much the same as in the first instance. In other varieties also there is a predisposition to recurring attacks if the patient is exposed to any of the influencing conditions, but this is about all that can be said on the subject.

The complications met with are few. Hysteria, though rare, is the commonest. Epilepsy is sometimes found, and mental derangement is very unusual. Patients who have recovered may subsequently develop chorea, or there may follow muscular atrophy of varying extent and severity.

The treatment for tetany is rather unsatisfactory. In France at one time every patient was subjected to bleeding. The use of some form of thyroid extract is, of course, indicated in cases which are the result of thyroidectomy, and in such cases the results have been as remarkably beneficial as in myxœdema, but in cases from other causes thyroid extract has not been so successful. The relation between this form and that in pregnancy is so close, however, that it should be tried in the latter, and in some cases it has been of considerable benefit. Apart from this, however, no definite antidote to the auto-intoxication is known.

To patients with dilated stomachs an emetic should be given, and, if adults, the stomach may be washed out with warm water and resorcin or some similar antiseptic. In cases of constipation, particularly in children, calomel may be given every second day, and enemata are also useful. Excretion by the kidneys and skin should be encouraged by Turkish baths, hot packs, and other suitable methods.

The diet should be regulated so as to reduce the production of toxins. It should be liberal and nutritive and at the same time easily digested. In the case of children, feeding should be systematic, and nourishment should be given in quantities and at intervals suitable to the age of the patient. Milk should be the basis of the food, and solids should be partly or entirely cut off according to age.

Hyperacidity or the reverse in the gastric secretion should be corrected by prescribing alkalies or acids as indicated. Opium may be given if there is persistent diarrhœa. Rickets should be combated by suitable feeding with milk, cream, and raw meat juice, and lime salts

and iron may be prescribed. Every means should be used to build up the patient's general strength, and for this cod-liver oil, malt, and various forms of arsenic, iron and phosphorus are very useful.

When a spasm occurs a tepid bath may help it to pass off more quickly, and a bath three or four times a day at a temperature of about 90° F. sometimes helps to reduce the number of attacks. In chronic cases baths are of little use.

Everything possible should be done to prevent the occurrence of spasms. The room should be kept at an even temperature, the patient should be warmly clothed both day and night, and tepid water should be used for washing.

Electrical treatment is of very little use, but feeble descending constant currents with the anode applied over the spine and kathode over the peripheral nerve trunks may help to reduce the irritability of the spinal cord. This is most likely to be effective when the condition is becoming chronic.

Of drugs, bromides and chloral are frequently prescribed; morphin is liable to cause constipation. Chloral may be conveniently administered to children by the rectum, as in this way it is not so likely to increase the spasms as is sometimes the case when it is given by the mouth. In one case, where bromides and chloral failed, Cheadle found that extract of Calabar bean given three times a day in doses commencing at  $\frac{1}{16}$  of a grain and gradually increased to  $\frac{1}{8}$  was successful. At the same time the patient was taking iron and cod-liver oil, however, and this alone might account for the improvement.

If there is danger of death from asphyxia, chloroform inhalations may be given, but great care is required, as the first effect of the chloroform may be to increase the spasm. Two cases are recorded in which active massage during chloroform anaesthesia had beneficial results. By inducing sweating, a hypodermic injection of pilocarpin may hasten the relaxation of the spasm.

In nocturnal tetany, Gowers recommends digitalis at bedtime. Bromides are sometimes successful, and tonics should be given during the daytime. Robson has published records which, he claims, show that immediate pylorotomy and gastro-enterostomy relieve the symptoms and prevent a recurrence in cases of gastro-tetany. In this connection I may mention that a patient with dilated stomach treated in the Richmond Hospital last spring had an attack of tetany almost every time his stomach was washed out. Gastro-enterostomy and pylorotomy were done, and the patient made an excellent recovery. The pylorus proved to be malignant.

The most recent case of tetany published in this country, so far as I have been able to trace, was described by Dr. Moorhead in *The Practitioner* about six years ago. It was a case of gastro-tetany, and had a fatal termination three weeks after admission to hospital. There was a history of intermittent vomiting for two periods of two years each, separated by a latent period of two years, and of chronic nasal discharge for two years previous to admission. In six months she had lost about two and a half stones weight. There was distinct splashing audible in the stomach, which was dilated; the urine was alkaline, slightly turbid, and contained a few hyaline tube casts and some bladder epithelium cells, but no albumen or sugar; the amount was small. Knee-jerks and plantar reflexes were exaggerated. Vomited matter contained .3 per cent. of free hydrochloric acid, a slight trace of lactic acid, and abundance of albumoses and peptones. On admission resorcin was prescribed in a mixture. A characteristic attack, involving both arms and the face and neck, was induced, two days after, by washing out the stomach. There was no spasm in the legs, but tingling and pain; knee-jerks were lost, plantar reflexes normal. A blood examination showed a reduced number of red corpuscles with an increase in white corpuscles. Pulse regular, but weak, 84 per minute; respirations, 22; temperature, 98° F. Only sixteen ounces of urine were

passed in the next twenty-four hours. The spasm had not wholly subsided until the second day after its onset. Neither Troussseau's, Erb's, nor Chvostek's symptoms were ever elicited. After this the stomach was washed out daily and the patient seemed to improve steadily. The vomiting ceased, and for nearly a week the size of the stomach seemed reduced. During the spasm a considerable quantity of albumen was present in the urine, and this continued up to the end. There was an increase in both red and white corpuscles of about 50 per cent. of the numbers first found. One morning the patient woke in a collapsed condition; a partial rally followed the administration of brandy; but in a few hours she became comatose again and died. Just before death she vomited a large amount of dirty greenish material. No urine had been passed for about twelve hours, so a catheter was passed and drew off half an ounce of urine, which on boiling gave a solid coagulum of albumen. On *post-mortem* examination the stomach was found enlarged and full of material similar to what was vomited. The mucous membrane was somewhat atrophic and chronically inflamed. The kidneys showed characteristics of acute nephritis, and the liver and spleen were congested. The alveoli of the thyroid gland were greatly distended with colloid material, and contained patches of calcareous deposit. No abnormal change was found in the spinal cord.

Leucocytosis had only been recorded by two other observers besides Dr. Moorhead, as he points out, and in every case more than 80 per cent. of the white cells were polynuclear neutrophiles. The maximum numbers found in the respective cases were 40,000, 31,500 (Dr. Moorhead's patient), and 24,000 per cubic millimetre. The only other observer in recent times who appears to have made a blood count recorded 9,400 per c.mm.

An examination of matter vomited during the spasm showed an acid reaction, but no free HCl; lactic acid was present. The vomit immediately before death contained a large amount of sandy material in suspension, which

was soluble in nitric acid, but was not further identified; a trace of lactic acid was found, but no hydrochloric acid or acetone, and there was a distinct murexide reaction. At an interval of an hour, two amounts of 10 c.cs. each of the first vomit were injected into a rabbit, but no toxic effects were observed. From each vomit an alkaloid substance which gave the reaction of a di-amine was isolated. The first specimen, injected intravenously into rabbits, caused no toxic effects, while in the second case some temporary dyspnoea alone was produced.

In conclusion, I would like to draw your attention to a series of most interesting experiments published by Halliburton in connection with a case of gastro-tetany. In this case there were strong contractions of both arms and hands, and on one occasion consciousness was lost for thirty-six hours. The urine, of specific gravity 1028, showed traces of albumen and acetone during the spasms; afterwards these disappeared, and a trace of sugar was found. Matter vomited in the intervals between attacks contained acetone and hydrochloric, acetic, and butyric acids. On one occasion hydrochloric acid was present in excess, while once it was absent. From the vomited matter a preparation was made of what he calls a "tetany fluid," which he used in a series of five sets of experiments. The acidity of the vomit was equivalent to .115 parts of HCl in 100.

1. In the first, 5 c.cs. of the tetany fluid, representing 20 c.cs. of the original vomited matter, were injected into the external jugular vein of a cat, which was anæsthetised. No spasms or convulsions followed, but there was considerable slowing of the heart, and a great fall in arterial pressure. This slowly recovered its usual height, while at the same time the heart was faster than before.

2. The two vagi were then cut, and an equal amount of the fluid injected, with practically no result. From these two he concludes that the main fall in arterial pressure was due to the action of some toxin on the cardio-inhibitory centres.

3. It was thought that the fall might be due to the acid substances present, so an equal amount was injected, after neutralisation, into another cat under similar conditions. There was only a slight fall in blood pressure, which he attributes to the use of potash instead of soda as the neutralising agent. Hence he concludes that the fall in blood pressure is due to some acid substance present.

4. He draws attention to a series of experiments by Bouveret and Devic, who injected solutions of hydrochloric acid of strengths varying from .1 per cent. to .9 per cent. into animals. The weaker and medium solutions resulted in a fall of temperature of from a little more than one to rather less than three degrees Fahrenheit. The strongest solution resulted in general convulsions with a rapid fall in temperature of nearly  $2^{\circ}$  F. The conclusion was that the normal percentage of hydrochloric acid in gastric juice caused little disturbance if injected intravenously. Working on the same lines, Halliburton found that solutions of free hydrochloric acid of the same acidity as the tetany fluid gave only a slight fall in blood pressure not abolished by section of the vagi, and concludes that the substance responsible for the result with the tetany fluid is much more poisonous than hydrochloric acid and acid in reaction. No peptone or pepsin was present in the tetany fluid, and he states that the convulsions after injection of large quantities of these substances are very different from those he observed.

5. To complete the series of experiments he took the gastric contents of two patients, who, at the most, suffered from very slight dyspepsia. In the first case the acidity was equivalent to .13 per cent. of free hydrochloric acid.

- (a) He first injected the equivalent of 20 c.cs. of the original gastric contents, and found a slight fall in blood pressure.
- (b) 5 c.cs. of .2 per cent. hydrochloric acid gave the same result.

- (c) After section of the vagi the fall in blood pressure on injection of 5 c.cs. of .2 per cent. HCl was a little more marked.
- (d) After section of the vagi the equivalent of 20 c.cs. of the original juice was injected, giving a correspondingly increased fall in blood pressure.

The acidity of the other specimen of gastric juice was equivalent to a .06 per cent. solution of HCl. Experiments similar to those first performed merely resulted in a slight fall in blood pressure.

Halliburton claims that these experiments establish beyond doubt the theory of auto-intoxication, and that the effect of the toxic substance, which has an acid reaction, was, in this case at all events, some excitation, either direct or reflex, of the cardio-inhibitory centres, and possibly of some other centres in the brain and spinal cord.

A. O'L., male, aged twenty, draper's assistant, was admitted to hospital on November 17th, 1910. He complained of what he called "nervousness," taking the form of paroxysmal seizures.

He has suffered from these since August, 1903. At first he only noticed that his jaw became rigid, and he was unable to close his mouth. About two months later the limbs became involved. Four months later—in February, 1904—he saw a Dublin physician, who gave him two prescriptions, one of which contained opium, but his condition did not improve. At this time severe attacks were bi-lateral, milder ones usually right-sided, and he suffered frequently from headache. In July, 1904, he consulted a surgeon, who trephined over Broca's area on the left side. Since then the headache has diminished both in frequency and severity, and in about 90 per cent. of unilateral spasms the left side is involved, but their frequency has not decreased.

In the course of an attack he first feels a "crawling" sensation up along the thigh; this lasts for about ten seconds, extending upwards, and is sufficient to enable him to seek a support if standing up. The general spasm then comes on. The wrist and elbow are semi-flexed, the forearm

strongly pronated, and the upper arm brought forwards and slightly inwards. The thenar and hypothenar eminences of the hand are approximated, and the fingers are drawn close together, so that the hand becomes conical. The toes are flexed and inverted, and the legs rigidly extended. There is sometimes accompanying dimness of vision, and temporary aphasia, partial or complete, but never any loss of consciousness. The spasms are always tonic. The attacks last for less than a minute, but recur frequently, and he has had as many as thirty bi-lateral attacks (besides many unilateral) in twenty-four hours. For a week or ten days they become very severe and frequent, and then gradually decrease in frequency and severity, for about four weeks. This cycle constantly repeats itself.

He thinks he can to some extent fight off an impending attack by turning out the toes as forcibly as possible and firmly grasping some support.

His bowels have been fairly regular, and he has always corrected any tendency towards constipation. He occasionally has cramps in the sole of the foot in the intervals of attacks, especially when lying in bed. He used frequently to suffer from stitches in the side, but latterly they have almost disappeared.

In infancy the patient had measles and "inflammation of the lungs"; five and a half years before the onset of the spasms he had typhoid fever, and two months before they appeared he unexpectedly got a severe shock from a penny-in-the-slot electric machine. Up to eleven years of age he used to have bilious attacks with severe headache and vomiting of green matter; but these disappeared as he grew older.

His father, a shoemaker, aged sixty, has for years suffered from "a bad stomach." Mother and only sister are alive and well; no brothers; three step-brothers, children of the father by a previous marriage, died of consumption acquired from their maternal side; one step-sister suffers from gastric trouble with headache and vomiting.

Patient has good muscular power in all limbs. If anything, the left side is slightly the weaker. There is occasionally some slight incoordination or awkwardness in movements of the hands and arms.

The knee-jerk is exaggerated in both legs. There is occasional suspicion of horizontal nystagmus. Other reflexes

are normal. Trousseau's sign may occasionally be demonstrated. Heart and lungs are normal.

The stomach is not dilated; nothing abnormal is palpable in the abdomen.

The thyroid gland shows no signs of abnormality.

To constant currents, AOC, ACC and KCC are about equal.

*Urine* (specimen passed thirty minutes after a severe spasm).—Reaction acid, specific gravity 1035, no albumen, sugar, indican, or acetone.

*Blood*.—Red corpuscles 5,750,000 per c.mm.; white cells 22,800 per c.mm., of which 70 per cent. are polymorphonuclear neutrophiles.

Temperature constantly subnormal.

Highest pulse-rate 94 per minute.

*Note*.—Since the above was written the patient has been under observation for a further period of ten weeks, during which there has been a marked improvement in his condition. Since December 1st he has not had a single bi-lateral spasm and a much smaller number of unilateral ones than previously. He has been taking  $7\frac{1}{2}$  grains of bromides three times a day continuously, with  $7\frac{1}{2}$  minims of liquid extract of cascara sagrada. For the last six weeks this dose has been doubled, and he has been instructed to continue this for some weeks longer.

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ART. XV.—*Diabetes and Pancreatic Secretion.*<sup>a</sup> By  
ROELOF ADRIAAN ALBERTIJN, M.D. Univ. Dubl.

DIABETES is a disorder of nutrition, and especially of the carbohydrate metabolism. A large percentage—about 30 per cent.—of cases of diabetes that have been examined after death have shown a diseased state of the pancreas.

That the pancreas influences the carbohydrate metabolism has been clearly shown by experiments on animals. Removal of the pancreas is followed by glycosuria; if a portion of the pancreas is left no glycosuria results.

At first it was supposed by some that glycosuria resulted from the disturbance of the nervous structures in the operation of removing the gland, but this was disproved by removing the pancreas from its position and stitching it to the anterior wall of the abdomen, no glycosuria resulting on such an operation.

Minkowski and von Mering proved clearly that the pancreas possessed an internal as well as an external secretion, for if a portion of the pancreas was left or even grafted into the muscular wall of the abdomen after removal of the rest of the gland and its ducts no glycosuria resulted.

Microscopic study of the gland reveals two types of cells—the gland cells proper arranged in alveoli round a central duct and producing the external secretion which is poured into the intestines, and another kind arranged in small groups scattered through the gland, and more numerous towards the tail of the pancreas. These cell groups form the so-called "Islets of Langerhans"; each group is made up of polygonal cells, and is supplied with a rich capillary network. They are supposed to produce the internal secretion, and a great deal of evidence has been adduced in favour of this view. On the other hand, many deny that these groups of cells are a distinct kind, and state that they are only a phase in the existence of

\* A Thesis read for the Degree of Doctor of Medicine in the University of Dublin, December 19, 1910.

the other type of gland cell, an exhausted or resting stage; in favour of this view is the evidence of embryology and the observation that after excessive stimulation of the pancreas by the injection of secretin, the pancreatic hormone, there is a marked increase in the number of the "islets"; the same increase in their number has also been noticed after fasting (Dale). An alveolar acinus has actually been observed in which the cells in one part were of the ordinary glandular type, and gradually changed to cells of the "islets" in the other part; and hence it has been suggested that the ordinary glandular cells of the pancreas produce both the external and internal secretions.

Starling and Bayliss have shown that a substance called secretin is derived from the cells of the duodenal mucous membrane and stimulates the secretion of the pancreas. This is not a reflex nervous secretion but the result of a direct stimulation of the cells of the pancreas by its hormone carried to it in the blood.

Secretin is found in the cells of the mucous membrane of the duodenum and upper part of the jejunum as granules of prosecretin, which cannot stimulate pancreatic secretion.

Prosecretin is soluble in normal saline solution, if this solution is treated with dilute acid or if merely boiled secretin is split off. Hence scraped mucous membrane of the duodenum when treated with a dilute solution of hydrochloric acid yields the active principal secretin which when injected into the circulation stimulates pancreatic secretion. This active principal withstands boiling, hence it is not an enzyme but a chemical stimulant.

How the internal secretion acts in carbohydrate metabolism is not clear.

Cohnheim experimented with muscle and sugar, and he found that if he added muscle to a solution of sugar there was no oxidation of sugar, nor if he added pancreatic extract alone to a solution of sugar; but if he added muscle and a little extract of pancreas to a solution of sugar the latter was rapidly oxidised to  $\text{CO}_2$  and alcohol.

It is inferred that the pancreas produces a substance which activates the glycolytic enzyme or enzymes in the muscle. Other views are that the internal secretion contains an enzyme which is necessary for the oxidation or hydrolysis of the sugar of the body, if it is absent sugar accumulates in the blood and glycosuria results; or that the internal secretion regulates the output of sugar from the liver, and that in its absence the liver discharges the glycogen as sugar too rapidly, with a resulting glycæmia. Although it may not be settled how the internal secretion acts in carbohydrate metabolism, still it is evident that it is essential for its proper completion. This, together with the fact that in a large percentage of cases of diabetes there is also found disease of the pancreas, give some ground for supposing that some cases of diabetes may be due to a want of the internal secretion. Further, it may be supposed that the internal secretion, like the external, is stimulated by the secretin, especially if the view that the ordinary pancreatic cells produce both the external and internal secretions be accepted. This occurred to Starling, and he mentions a case of diabetes in which injections of secretin were tried to stimulate the secretion of the pancreas, but no improvement resulted in the case.

Proceeding with this hypothesis there appear two places where the process leading to the production of the internal secretion may break down :—

(1) At the cells of the mucous membrane of the duodenum.

(2) In the pancreas.

(1) The cells of the mucous membrane of the duodenum may be diseased and not contain prosecretin from which secretin is split off by the acid chyme: thus the pancreatic hormone, secretin, will be absent. Workman found that in the majority of cases of diabetes examined *post-mortem* the mucous membrane was affected.

In cases of diarrhœa the inflammation of the mucous membrane of the intestine occasionally extends to the duodenum, and as glycosuria sometimes accompanies

diarrhoea it may arise from a want of proper production of secretin or from impaired function of the cells of the mucous membrane, which by some are supposed to change the carbohydrate into glycogen before absorption.

(2) If the cells of the pancreas which produce the secretion are diseased there can be no stimulation to activity even if the secretin be normally produced in the intestine and absorbed.

Reasoning from the result of experiment another condition of glycosuria may result, which is related to the production of the internal secretion. Cohnheim's experiments showed that on adding excess of pancreatic extract to a solution of sugar to which muscle had been added there was a retarded oxidation of the sugar; this may introduce the consideration that although as a rule pancreatic diabetes is due to a want of the internal secretion, still there may perhaps be cases where it is due to excessive internal secretion. The theory of the hyperactivity of the thyroid gland causing exophthalmic goitre is well known. I have, however, not seen any record of a hypertrophied pancreas being found *post-mortem* in diabetes, a condition which hyperactivity necessarily entails.

In considering the above conditions there apparently is good reason to expect, if secretin is administered in those cases where the internal secretion is wanting and the pancreatic cells are normal and only functionally inactive from the want of the proper stimulus, that in such cases activity of the pancreas will result. Hence it is only in a limited number of cases of diabetes that improvement can be expected under treatment with the acid extract of the duodenal mucous membrane. By the kind permission of Dr. Peacocke I am able to add the record of a case of diabetes that was under his care in the Adelaide Hospital, and which was treated with palatinoids of duodenal extract. The daily estimations of sugar were made by me.

CASE.—Female, aged sixty years. Admitted to hospital

17th February, 1910. Patient on admission was complaining of weakness and thirst; she said she was growing thin. The urine contained sugar, but did not give the diacetic acid reaction with ferric chloride.

Date	Amount of Urine in 24 hours	Amount of Sugar in Urine	Weight of Patient	Treatment
Feb. 17	ozs. —	grains —	st. lbs. —	Patient was on an ordinary non-diabetic diet
„ 18	—	—	11 2	„ „
„ 19	—	—	—	„ „
„ 20	68	686	—	„ „
„ 21	50	783	—	„ „
„ 22	40	633	—	Palat. duodenin grs. V. One was given three times a day
„ 23	38	729	10 11½	„ „
„ 24	49	1,013	—	„ „
„ 25	48	1,196	10 12	„ „
„ 26	49	—	—	„ „
„ 27	59	1,140	—	— —
„ 28	51	2,119	—	Palatd. duodenin grs. V., II. t.i.d.
March 1	60	864	—	„ „
„ 2	47	846	—	„ „
„ 3	52	845	—	„ „
„ 4	68	864	11 1	„ „
„ 5	54	979	—	Palatd. duodenin grs. V., III. t.i.d.
„ 6	35	998	—	Ordinary diet and palatd. duodenin grs. V., III. t.i.d.
„ 7	55	576	—	„ „

Date	Amount of Urine in 24 hours	Amount of Sugar in Urine	Weight of Patient	Treatment
March 8	ozs. 49	grains 1,013	st. lbs. —	Ordinary diet and palatd. duodenin grs. V., III. t.i.d.
„ 9	68	483	—	„ „
„ 10	58	403	—	„ „
„ 11	60	720	11 1½	„ „
„ 12	58	780	—	„ „
„ 13	62	1,056	—	„ „
„ 14	56	720	—	„ „
„ 15	59	640	—	„ „
„ 16	74	380	—	„ „
„ 17	48	600	—	„ „
„ 18	33	449	11 3	„ „
„ 19	44	386	—	„ „
„ 20	35	154	—	„ „
„ 21	69	720	—	„ „
„ 22	46	480	—	„ „
„ 23	34	546	11 3½	„ „
„ 24	—	—	—	— —

This was not a severe case of diabetes. The first estimation of the amount of sugar passed was made on the 20th of February, three days after the patient was admitted, and it was found to be 686 grains. Whether a diabetic diet would have caused a decrease or disappearance of the sugar from the urine was not tested; the patient was always on the ordinary hospital diet. The output of sugar steadily increased until it reached 2,119 grains on the 28th of February, six days after the treatment with duodenal extract was begun; on that day the amount of extract

given was doubled, and five days later was still further increased. On the 1st of March the amount of sugar fell to 864 grains, and it remained more or less at that for about a week, and then gradually fell in a fluctuating manner, with a marked increase to 1,056 grains on the 13th of March, but on the 20th of March it was down to 154 grains, and then it rose again, so that when the patient left the hospital on the 23rd of March the amount of sugar was 546 grains. The following signs of improvement under the treatment may be noticed :—

1. Although there was a rise in the output of sugar for the first few days, there was a marked fall within a week of the commencement of the treatment with duodenin palatinoids, which decrease persisted till the patient left.

2. And this decrease was produced in spite of the patient being kept on the ordinary hospital diet.

3. The patient regained the weight which she had lost. On February 18th, the day after admission, the patient weighed 11st. 2lb; she was losing weight, and on the 25th of February, when the treatment with duodenin was begun, she was 10st. 11½lb. After that she began to regain her lost weight steadily, so that on leaving the hospital she was 11st. 3½lb.

Other cases have been published in which improvement followed the administration of duodenal extract. Moore and Edie, in the *Biochemical Journal*, record three cases with favourable results. One was that of a man, aged twenty-five, who was passing daily about 3,000 grains of sugar. Diabetic diet did not materially reduce the amount of sugar even after the patient was taking sodium bicarbonate and codein as well. Acid extract of the duodenum was given, and in three weeks there was a marked fall, and in three months the sugar disappeared.

Another was that of a girl, nine years old, passing 1,800 grains of sugar in her urine daily. She was put on a more or less strict diabetic diet and duodenal extract, with the result that the sugar disappeared in about a month.

The third was that of a boy, passing about 2,700 grains daily. He was put on diabetic diet and duodenal extract, and in about six weeks the sugar disappeared.

The extract is obtained in the following way :—The upper three or four feet of the small intestine of a pig are obtained quite fresh, slit open and spread on a flat surface, with the mucous membrane uppermost. It is then rapidly washed with water or saline to remove adherent matter, but the washing must not be prolonged. The mucous membrane is then scraped off with a knife, and the scrapings are passed through a mincing machine. After that an equal volume of 0.4 per cent. of hydrochloric acid is mixed with it, and it is left for about five minutes; then it is raised to the boiling point while gently stirring. After this it may be filtered. Dilute NaOH is then added to the filtrate until it is just acid to litmus paper. The solution has to be freshly made, as even the acid solution loses its activity in a few days.

In the same Journal at a later date Bainbridge and Beddard published the report of three cases of diabetes which were treated with the extract, but in all of them the output of sugar continued to rise.

Their experiments with the acid extracts of the duodenal mucous membrane of diabetics and non-diabetics obtained *post-mortem* are very interesting. Prosecretin was found in fair amount in the mucous membrane of the duodenum up to two days after death. A series of six cases of diabetics and nine of non-diabetics were examined as soon after death as possible, and an acid extract was made of the mucous membrane of the duodenum. This was injected into animals, and the results proved that prosecretin was present in all nine cases of non-diabetics, but was absent in five out of the six cases of diabetics; in the sixth case there was a fair amount of prosecretin present. Three of the five cases had died of coma. These results are in favour of the treatment with duodenal extract, for the absence of prosecretin renders the pancreas functionally inactive, as no secretin can be formed to act as a

stimulus for secretion; and the rapid wasting often associated with diabetes may to some extent be due to the absence of pancreatic digestion, besides the upset of the carbohydrate metabolism. It is believed that during starvation glycogen may be formed from protein-tissue of the body—according to some only from protein like egg-albumen, which contains a carbohydrate grouping in the molecule. This destruction of protein probably takes place in some cases of diabetes, and is another factor in bringing about the rapid wasting. The constant relation between the amount of nitrogen and sugar in the urine of a diabetic on a diet free from carbohydrate is in favour of this (Howell).

Although prosecretin was absent from the duodenum in five out of six cases of diabetics, still that will not warrant the expectation of good results from treatment in a large number of cases; for if the absence of prosecretin is secondary to disease of the pancreas, or if pancreatic disease and want of pyrosecretin are independent but co-existing lesions, then the treatment with duodenal extract is bound to fail. But as it is only in a restricted number of cases of diabetes that the treatment with the extract is suggested to be of use a small percentage of favourable results is all that can be expected; and negative results may prove only that they were not suitable cases for such treatment.

Against the treatment by the extract is the experience of Starling that secretin is not absorbed when introduced into the alimentary canal even in large amount. But the apparently favourable results obtained in a few cases with this treatment may justify further trial of its value.

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SIR WILLIAM WHITLA, M.D., LL.D.

THE issue of "Mayfair" for the week ended April 22 contains an excellent coloured cartoon of Sir William Whitla, M.D., LL.D., Professor of Materia Medica in the University of Belfast, together with a most interesting biographical sketch of this distinguished Irish physician.

## PART II.

### REVIEWS AND BIBLIOGRAPHICAL NOTICES.

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*Quain's Elements of Anatomy in Four Volumes.* Vol. III., Neurology. By PROFESSORS E. A. SCHÄFER and J. SYMINGTON. Part II. The Descriptive Anatomy of the Peripheral Nerves and of the Organs of Special Sense. Eleventh Edition. London: Longmans, Green & Co. 1909. Royal 8vo. Pp. viii + 384.

THE publication of Part II., Vol. III., of the eleventh edition of "Quain's Anatomy" completes what we venture to believe will for many years remain the standard work on Neurology in the English language. Part I., Vol. III., gives an elaborate account of the macroscopic anatomy of the brain and spinal cord, and also includes a careful detailed description of the microscopic anatomy of the nerves and the parts of the central nervous system, including the arrangement and connections of the nerve fibres. Part II., recently issued, deals with the nerves and the organs of the senses. In the description of the cranial and spinal nerves it has not been found necessary to make many changes in the account given by Professor Thane in the tenth edition of Quain, but it will be noticed that among the changes introduced G. Streeter's classification of the branches of the vestibular and cochlear nerves, based on his studies of the human embryo, is included. Several new illustrations are to be found, those from the works of Bolk and Cushing being especially useful.

The work illustrates how little advance has been made in our knowledge of the "Sympathetic System." We recognise that the usual descriptions are artificial and that much information regarding the origin and function of its various portions is required before a satisfactory

account of the anatomy of this system can be written. In "Quain's Neurology" the minute sympathetic ganglia of the head are still described in the section dealing with the fifth cranial nerve, although all the other ganglia having, as far as we know, a similar origin and structure are dealt with in a special section devoted to the sympathetic system.

The descriptions of the eye, ear, and nose are most excellent, and many new illustrations will prove valuable to anatomists and also to specialists in the surgery of these parts. Much attention is devoted to the mastoid region, and several interesting and useful new figures are introduced. The difficult question of the arrangement of the air cells in relation to the nasal fossæ is fully dealt with and clearly illustrated by drawings from dissections by Professor Symington and Dr. P. T. Crymble. The account of the histology and submicroscopic anatomy of the eye and ear is very complete and beautifully illustrated. We do not know of any other work which deals with these sense organs in so satisfactory a manner.

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*The Ear and its Diseases.* By ALBERT A. GRAY, M.D.

With Stereoscopes and 123 Illustrations, of which 37 are Stereoscopic. London: Baillière, Tindall & Cox. 1910. 8vo. Pp. xii + 388.

THIS excellent statement of our present knowledge of ear disease is intended by the author to appeal to the student, the practitioner, and the aurist, and, considering the extremely difficult task which the author has set himself, he has achieved a very considerable degree of success. He has paid a great deal of attention to the anatomical descriptions and illustrations of the parts concerned, and has provided a simple stereoscope (which fits into the cover of the book), the better to enable the reader to understand the numerous photographs of the bony parts, &c. The chapter on Otosclerosis is perhaps the most interesting, and is well up to date. The anatomical changes found in this still obscure, though fairly common,

disease are well described. The various theories as to its causation are discussed.

The whole book is well got up, and carefully edited, and is written in clear and readable English. It may be regarded as a valuable addition to the possessions of either the student, the practitioner, or the aurist.

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*Glaucoma: An Enquiry into the Physiology and Pathology of the Intra-ocular Pressure.* By THOMSON HENDERSON, M.D. London: Edward Arnold. 1910. Demy 8vo. Pp. xv + 222.

DR. THOMSON HENDERSON in his preface states that "the aim of the present work is to bring forward sufficient cumulative evidence to establish the circulatory nature of the intra-ocular pressure, and thus to correlate the conditions in the eye with those already proved by Leonard Hill as existing in the brain."

We have seldom read a more remarkable work on any ophthalmological subject, or one which arrested one's attention and held it more tenaciously. The colossal audacity with which Henderson throws Priestley Smith's accepted theories to the wind, and the clear reasoning with which he builds up his own theories, cannot fail to claim the undivided attention of all who come across this very important contribution to the physiology and pathology of the eye.

It is impossible here to give a detailed criticism of his various theories, but a brief survey of the main points of his argument, copied from the book, page 221, will suffice to indicate his contention and the results which he claims to have arrived at:—

"*Physiology.*—In the rigid *cranium* the pressure of the fixed intra-cranial volume stands and varies directly with the cerebral venous pressure.

"Simultaneous measurements show that intra-ocular pressure = intracranial pressure. Therefore, the corneo-sclera acts as an unyielding case with a constant volume, and the intra-ocular pressure is the same as the intra-ocular venous pressure.

“ *Hydrostatics*.—Fluids always tend to the lowest hydrostatic level. Therefore, the fluids in the eyeball and cranium lie at intra-venous pressure, because such is the lowest circulatory pressure in these closed spheres.

“ *Model of Normal Eye*.—Total volume constant. Elastic circulatory system. Diffusion takes place between contained fluids and return (venous) circulation. Therefore, contents-pressure = return (venous) circulatory pressure of an *elastic* system of tubes.

“ *Glaucoma Model*.—Total volume fixed. Absence of diffusion between contained fluids and return (venous) circulation.

“ Therefore, the fluid and incompressible contents act as a rigid volume, converting the elastic circulatory system into a rigid one.

“ The outflow pressure of a rigid system is always higher than that of a similar elastic system of tubes. Therefore, the contents pressure is raised, as the lowest circulatory pressure is that of a *rigid*, and not an elastic circulatory system.

“ *Glaucoma*.—Sclerosis of the cribriform ligament hinders diffusion of aqueous into Schlemm's canal. Therefore, the intra-ocular contents (aqueous and vitreous) act as a rigid mass, which forces the elastic circulation into rigid lines, and, in doing so, alters the relative volume of blood in arteries, capillaries, and veins.

“ In the eye hindrance to diffusion is not absolute, as in the glaucoma model, but relative. Therefore, as the total vascular volume in the area becomes altered, the aqueous volume is displaced and the anterior chamber becomes shallow.

“ *Iridectomy*.—Wounds of the healthy iris stroma never cicatrise. Therefore, a glaucoma iridectomy, by facilitating the direct contact of aqueous with iris veins, prevents the intra-ocular fluids from acting as a rigid volume.”

The work is divided into two parts. Part I., in which he deals with the anatomy of the eye, is, beyond doubt, the most important, and as Dr. Henderson has been a

careful and diligent student in this field, his conclusions, though revolutionary, must command acceptance to a very large degree.

The *Ligamentum pectinatum* (which Henderson calls the "cribriiform ligament") is, he says, a continuation of the fibres of the *substantia propria* of the cornea, and does not arise from Dercemet's membrane.

Again, he claims that the *circulus iridis major* and the so-called anterior ciliary arteries are veins, not arteries. The point so specially emphasised by Priestley Smith—viz., the compression of the iris base in glaucoma—has, according to Henderson, no existence; and so on.

Part II. deals with the physiology of the intra-ocular circulation.

The book is written throughout in clear, readable English, and there is a refreshing certainty of statement which makes ready converts to his novelties. Each series of experiments or arguments is followed by a summary of the conclusions at which he has arrived—an arrangement which adds considerably to the value of the book, as it readily enables the reader to see if his conclusions correspond with those of the author.

The debatable points in this most fascinating work are too numerous to discuss in this review, but no one interested in glaucoma should fail to read the book for himself.

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*The Year-Book of the Scientific and Learned Societies of Great Britain and Ireland.* A Record of Work done in Science, Literature and Art during the Session 1909-1910. Compiled from Official Sources. Twenty-seventh Annual Issue. London: Charles Griffin & Company, Ltd. 1910. 8vo. Pp. viii + 370.

THE sub-title of this Year-book tells fully its character and aims, and it is apparent that as a reference book it is almost indispensable to writers in every field of literature. The Medical Section occupies sixty pages, of which the

Royal Society of Medicine takes up one-fourth. One great value of the book is that it facilitates search for any subject by taking the place of a general index for the twenty-seven years of its existence; and is in many other ways a useful book of reference.

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*Golden Rules of Ophthalmic Practice.* Fifth Edition.

By GUSTAVUS HARTRIDGE. Pp. 72. *Golden Rules of Refraction.* Third Edition. By ERNEST E. MADDOX.

Pp. 96. Bristol: John Wright & Sons.

WE have often before felt constrained to protest against the publication of such brief *epitomes* as the "Golden Rules" series, and we have no love for the "tabloid form" of mental food for healthy students. Yet of *their kind* the "Golden Rule" series is excellent.

Hartridge in Vol. VII. and Maddox in Vol. XII. have done the best that it was possible to do under the circumstances; but we fear they have not done much to help the student or advance the knowledge of Ophthalmology amongst general practitioners, for no healthy body could thrive on beef-juice tabloids, even though each drop represented a pound of fresh beef!

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*A Manual of Practical Inorganic Chemistry.* By A. M.

KELLAS, B.Sc. (Lond.), Ph.D. (Heidelberg). (Oxford Medical Publications.) London: Henry Frowde and Hodder & Stoughton. 1910. Svo. Pp. viii + 347.

THIS book, chiefly devoted to qualitative and elementary quantitative chemical analysis, is, as the author states, "specially adapted to cover preliminary and intermediate university courses and the first three stages of the syllabus of the Board of Education." The subject is scarcely one which admits of much originality of treatment, and, considering the numerous books which have been published during recent years on the same subject, one is inclined to wonder that there should be any demand for the present work.

The book contains the usual copious tables, detailing all the reactions of the different metals and acid radicles. In our opinion this is rather overdone, as the student is likely to overlook the really distinctive tests out of a list of a dozen or more.

In the list of reactions of Bismuth one misses the reliable "magpie" test for that metal.

The use of Busch's reagent, "nitron," for the detection and estimation of nitrates is not mentioned.

The subject of volumetric analysis is fully and clearly explained and numerous examples are given in detail.

The book closes with a short chapter on gas analysis.

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*The Cancer Problem.* A Statistical Study. By C. E. GREEN, F.R.S.E. Edinburgh: William Green & Sons. 1911. Demy 8vo. Pp. 90. Figs. xii.

A BOOK on cancer by one who is not a medical man is unusual, but the author of the volume under review—perhaps for that very reason—considers the subject from some new standpoints. He has given to the composition of his thesis an enormous amount of labour, and has consulted many authorities. Beginning with an open mind, disposed rather against the parasitic theory, he has finished by adopting it. His points are briefly as follows:—(1) Many of the plant diseases which simulate the malignant growths of animals are known to be due to the action of certain of the lower fungi. Notably is this the cases in "fingers and toes" of cabbages due to one of the myxomycetes called *Plasmodiophora brassicae*, an organism which in its various stages is strikingly similar to the structures described by Ford-Robertson and Wade as occurring in malignant growths.

(2) This disease of cabbages occurs almost exclusively in soils treated with manures which in manufacture have been dissolved in sulphuric acid.

(3) Statistics showing the relation of cancer to trades bring out the fact that those who deal with substances containing inorganic sulphur compounds are more liable

than others to cancer, remembering that coal smoke and soot contain a large proportion of these compounds.

(4) Statistics of the local incidence of cancer show that the death-rate is higher in towns lying in depressions or on hilly sites and lowest in those on plains, and that in irregularly-lying towns the flatter parts are less liable to cancer than the hollow sloping parts.

(5) The author states that from personal observation of certain "cancer streets" and "cancer houses" he finds that nearly all those houses in which cases have occurred have badly-drawing chimneys, shown by the presence of cowl, or are exposed to smoke from lower-lying houses, both which conditions are more commonly present in buildings in a hollow or on irregular sites.

(6) In tropical countries, where there are no chimneys, or in places where the fuel is wood or peat, cancer is frequently almost unknown.

The author's conclusions are that cancer results from the growth of some varieties of lower fungi (not bacteria), which are assisted in their growth by imperfect oxidation and by the presence at the site of growth, or circulating in the system, of sulphur compounds, the latter condition being found in the more susceptible trades, and both where there is exposure to the products of combustion of coal.

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*Medical Diagnosis.* By W. MITCHELL STEVENS, M.D.,  
M.R.C.P. London: H. K. Lewis. 1910. Demy  
8vo. Pp. xl + 1571.

IN the compilation of his "Medical Diagnosis" Dr. W. Mitchell Stevens, of Cardiff, has departed to some extent from the plan of numerous works bearing a similar title, and instead of giving us what is often little more than a laboratory handbook, has attempted a survey of medical affections in general with their differential diagnosis. In fact, treatment omitted, the work is a very complete "Text-book of Medicine."

Naturally, the book is a considerable volume, contain-

ing as it does over 1,500 pages of text, though the publishers have succeeded in keeping down its bulk to very reasonable proportions—in fact, to less than that of the average text-book.

We are not familiar with any other work of exactly the same character, or, at any rate, with one at all so comprehensive as that before us, and Dr. Stevens is to be congratulated on the result of what must have been enormous and patient labour and investigation. It is not a book that one is likely to read through—there is little or nothing new or controversial—nor is such obviously intended. Well-established facts are, however, tabulated and arranged with extreme care under their different headings, and of such few appear to have been omitted. As a work of reference it should prove invaluable to the harassed practitioner, to the clinical teacher, or to the senior student. It contains in compact form the principal features of each disease, followed by an enumeration of those liable to be confounded, with their main diagnostic points. In many cases individual symptoms—*e.g.*, pyrexia—are separately treated, and exhaustive lists of possible causes, with their symptomatology, appended. This latter is, indeed, one of the most valuable features of the book, and in the first section, comprising three chapters dealing with general symptoms and physical signs, prominent clinical appearances are described in a condensed and connected manner, making them much more easily understood and appreciated than the scattered references of the ordinary text-book. For example, the incidence and import of “pain,” the “gaits” of various diseases, the “facies,” the causation of pigmentation, cyanosis, œdema, &c., are a few of many topics dealt with in full and suggestive fashion. The author has not hesitated even at a classification of causes of rise of temperature, and the points to be taken into consideration in the diagnosis of pyrexia occupy some twelve pages. In this instance, as in some others, we think the result hardly justifies the labour expended, but such a list might conceivably be useful in suggesting the diagnosis of an

obscure febrile case. The accompanying temperature charts are, however, numerous and instructive, and are excellently reproduced.

The diagnostic features of the various fevers are thoroughly described, special attention being naturally devoted to typhoid. The points in the diagnosis of this disease from general tuberculosis, with which we have found it most likely to be confounded, at any rate in children, are well brought out. In the diagnosis of measles, however, little stress is laid on the occurrence of the so-called "Koplik's spots," which are merely mentioned. The "fourth disease" of Duke's is recognised as a distinct entity, and the differential diagnosis from scarlatina is detailed. The description is the result of observations of one epidemic, not in the author's practice, and is not quite convincing as to the independent existence of the affection.

Diseases of the respiratory and circulatory systems, in addition to the usual full description in the text, are liberally illustrated with diagrams. The section dealing with the signs of pulmonary phthisis is very complete, and affords a good instance of the attention to minute detail evident throughout the book.

Nevertheless, when phthisis has to be differentiated from *thirty-two* other conditions, and when one of these is pulmonary aspergillosis, we cannot but feel that differential diagnosis is being pushed to extremes!

On the other hand, the lengthy lists of diseases producing such symptoms as abdominal pain or jaundice are undoubtedly most useful, while it will probably come as a surprise to most clinical physicians to find that biliary colic may be confounded with *twenty-five* other affections, some embracing several varieties! Compared with this there are some curious omissions—*e.g.*, we should like to see more space devoted to the question of hydrochloric acid in gastric juice.

Again, chronic interstitial nephritis is said to resemble *twenty-eight* other conditions, but the old examination problem of the distinction between the late stage of this

complaint, when the heart is failing, and the very similar train of signs and symptoms due to primary cardiac disease, is not so fully dealt with as we hoped, nor as those who have experienced the practical difficulty would wish.

As elsewhere through the book, the commoner tests in clinical use are also given for abnormal substances in urine. In the estimation of sugar a slip has occurred which might prove misleading. Fehling's solution is of such strength that 1 cc. is equivalent to 0.005 grm. of glucose, not to 0.05 grm., as stated.

We are particularly pleased with the large section dealing with diseases of the nervous system, which class lends itself, perhaps better than the others, to treatment in the tabular manner adopted. The various points in the diagnosis of nervous lesions are fully emphasised, and include a complete table of nerve distribution with numerous diagrams illustrative of brain, cord, and nerve affections. Associated cranial nerve, and especially eye symptoms, are grouped in this connection in a manner unusually clear and illuminating.

We have hinted above that the laboratory aspect of diagnosis has been very properly neglected, but as the commoner clinical methods, such as blood and urine examinations, are included and fairly fully described, we regret the omission of others rapidly becoming equally popular, such as the various tuberculin reactions, the sphygmomanometer, and the clinical polygraph.

With the exception of a short reference to different types of skin eruption, the sometimes puzzling diagnosis of skin diseases is also omitted. The fault is trifling, and has the support of many other eminent authors, for skin disease can be studied in only two ways, either clinically or by means of plates or models—description in our experience is useless.

Not the least important and satisfactory aspect of the work is the very complete index appended, and the mere statement that this occupies thirty-eight pages will convey the best impression of its efficiency.

Altogether, we can thoroughly commend the book to those who for any reason desire more detailed, yet more condensed, information that can be obtained from the generally short paragraphs devoted to this vital department of medical theory and practice in the ordinary text-book, and we consequently feel assured of its widespread acceptance and utility.

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*A Text-book of Gynæcological Surgery.* By COMYNS BERKELEY, M.A., M.D., B.C. Cantab., F.R.C.P. Lond., M.R.C.S. Eng., Gynæcologist and Obstetrician to the Middlesex Hospital, Senior Physician to the City of London Lying-in Hospital, Surgeon to the In-Patients at the Chelsea Hospital for Women, Consulting Gynæcologist to the Eltham Hospital; and VICTOR BONNEY, M.S., M.D., B.Sc. Lond., F.R.C.S. Eng., M.R.C.P. Lond., Assistant Gynæcologist and Assistant Obstetrician to the Middlesex Hospital, Senior Surgeon to Out-Patients at the Chelsea Hospital for Women. Pp. 720. With 392 figures in the text from drawings by Victor Bonney, and 16 coloured plates. London: Cassell & Co., Ltd. 1911. Demy 8vo. Pp. xi + 720.

WE are glad to be able to congratulate the authors of this work on the excellence of a very large part of it, though we think that if they had omitted everything that did not deal directly with gynæcological surgery, it would have been considerably shortened, and, we think, improved. An introduction on the ethics of surgical practice is out of place in a book of the kind, even if the authors had any special claim to be regarded as suitable exponents of such ethics; while the lengthy description of pre-operative preparation and post-operative treatment and complications would be more properly found in a work on general surgery.

As a rule the operations selected for description are well chosen and carefully and clearly described, and this is particularly noticeable in the very excellent description of

Wertheim's operation. The desire to attach the name of one of the authors to a particular operation has, however, led them into rather a curious error. Several pages are devoted to the description of an operation termed "Bonney's hysterectomy." As the authors say themselves, this "may shortly be described as a reversed Doyen." We venture to suggest that it was probably so described by Doyen himself. Personally we have performed the operation on several occasions, and we think that most people who have performed Doyen's typical operation have also performed that modification in which the cervix is reached through an opening made between the bladder and the uterus instead of between the rectum and the uterus. We never heard that any of those who practised this procedure were inclined to give their own name to it, nor were we so inclined ourselves, since in principle it is identical with the more typical form of Doyen's operation, even if it was not actually described in so many words by Doyen, as we believe it was. Doyen's operation is a characteristic one, designed on lines which at the time were quite original, and we do not think that any author ought to try to attach his own name to such a very unimportant modification, even if it is a modification.

A chapter is devoted to an operation termed "utriculoplasty," the term applied by the authors to an operation "first described by Kelly." The operation consists in reducing the size of the uterus by excising a portion of it. We do not know if Kelly describes the result of the operation as a "utriculus." We cannot find the term in any of his books, but even if he does it seems a curious one to select. The Latin word "utriculus," as used by Pliny, no doubt means a little womb or matrix, but in Celsus it comes to mean a small skin or leathern bottle, while the English equivalent "utricle" is applied to one of the two sacs of the membranous labyrinth of the ear, and to the remains of the Müllerian duct in the male (we quote from Dorland's "Medical Dictionary").

Apart from faults of the foregoing description, we can

recommend the book. The principles on which it is written are good, and the surgery taught is modern in its conception and in its practice.

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*Diseases of the Spinal Cord.* By R. T. WILLIAMSON, M.D. (Lond.), F.R.C.P.; Lecturer in Medicine, Victoria University, Manchester. Second Impression. London: Henry Frowde; Hodder & Stoughton. 1911. Large 8vo. Pp. xi + 432.

WE have nothing but praise for this work by Dr. Williamson. We have read it through with interest, enjoyment, and, we hope, profit. As one of the many Oxford Medical Publications it has already proved its usefulness by reaching a second impression. It is well bound, is printed on good paper, and is profusely illustrated. The author sticks closely to the limits he has imposed upon himself, and within them presents an up-to-date and readable account of all that is known concerning diseases of the spinal cord. The first part of the book is devoted to a consideration of the anatomy and physiology of the spinal cord, to the general symptoms of spinal diseases, and to the methods of diagnosis that should be employed in investigating those diseases. This is followed by a systematic and detailed account of the diseases themselves. The only omission that we detected was a failure to mention the treatment of limited paralyses due to acute anterior poliomyelitis by nerve anastomosis. This method of treatment has, of course, been discredited of late in many quarters, but in a book of this kind, which is intended for practising physicians, a summary of results obtained and an expression of opinion might be given. In dealing with disseminated sclerosis mention is made of the occasional difficulty in diagnosis from tumour in the neighbourhood of the optic thalamus. This difficulty is a real one, more especially when headache and vomiting, as is not infrequently the case, are absent, and differentiation then can be made only by relying on the presence of severe optic neuritis in the tumour cases.

This fact is duly referred to, and we only draw attention to it now for the purpose of emphasising a fact which we believe is not generally known. In dealing with progressive muscular atrophy the statement is dogmatically made that the disease is a rare one. This statement is, we believe, undeniable, but we welcome it, as most ordinary text-books give the contrary impression, and lead the student to think that amyotrophic lateral sclerosis, by far the commoner disease, is an almost unheard of rarity. Diabetic neuritis is shown by the author to be in many cases a true diabetic tabes, at any rate, to some extent, but we cannot agree with him or Leyden, whom he quotes, that diabetic neuritis is usually of the hyperæsthetic form. Undoubtedly anæsthesia is rare and little marked, but hyperæsthesia and hyperalgesia are—in our experience—as seldom met with. A little more information on the results of arthrodesis for tabetic joints would have been welcome, and in a book bearing the date 1911 we might perhaps have expected some mention of the results or want of results recorded by Ehrlich and others in the treatment of tabes by the Ehrlich-Hata remedy. In referring to these few points we feel that we have not done this book justice. Our reason for not dealing with the main bulk of the work is that its excellence puts it beyond criticism. We strongly recommend the book to all interested in diseases of the spinal cord.

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*A Manual of Bacteriology.* By ROBERT MUIR, M.A., M.D., F.R.C.P. (Ed.), Professor of Pathology, University of Glasgow; and JAMES RITCHIE, M.A., M.D., F.R.C.P. (Ed.), Superintendent of the Royal College of Physicians' Laboratory, Edinburgh. Fifth Edition. London: Henry Frowde and Hodder & Stoughton. 1910. Cr. 8vo. Pp. xxiii + 688.

THE present edition of this well-known manual has been brought up to date by the addition of two new chapters, of four new appendices, and of six coloured plates. The first of the new chapters (Chapter IV.) is on the examina-

tion of serum, including the Wassermann reaction, the estimation of opsonins &c., on the preparation of vaccines, and kindred subjects. The other is on the diseases due to spirochætes, such as syphilis and relapsing fever. The appendices, which deal with protozoal diseases and those of unknown cause, now include "yellow fever," "acute poliomyelitis," "phlebotomous fever," and "typhus," and in those dealing with tropical diseases the reader may rely on finding, as far as it is possible, the latest discoveries and conclusions. Two or three illustrations have been omitted and several added, and the coloured plates—which have been drawn by Richard Muir—are well reproduced. It may be noticed, however, that Fig. 45 is still printed sideways. One or two errors, as, for instance, in the account of the method used for counting bacteria in a vaccine, on page 134, have been corrected; and, in short, it may be said that, in the hands of its new publishers, the book still continues to hold in all respects its high place among standard works on bacteria.

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*The Prescribing of Spectacles.* By ARCHIBALD STANLEY PERCIVAL, M.A., M.B. Illustrated with Diagrams. Bristol: John Wright & Sons, Ltd. London: Simpkin, Marshall, Hamilton, Kent & Co., Ltd. 1910. Svo. Pp. 159.

THIS small work describes the practical methods of determining errors of refraction and errors of muscular balance, and gives clear directions for prescribing the appropriate spectacles for their relief. Perhaps the most interesting chapter is the third—"Faulty Tendencies and Deviations of the Ocular Muscles," with a preliminary exposition of the clinical use of prisms and the vexed question of nomenclature.

The appendix contains the Service Regulations for Candidates for Army, Navy, Indian Civil Service, Public Works, and English Railways: also deceneration tables, squares of numbers, and trigonometrical ratios.

The book is a most useful one to anybody wishing to become acquainted with the most scientific method of prescribing spectacles and the mathematics of the subject. The print is clear and good, and the style is readable and direct.

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*Medical Guide through the Chief Watering-places and Health-resorts, &c., of Germany and other European Countries.* Edited by HAROLD MORRÉ, M.D., American Physician and Surgeon, Berlin. Second Edition. Berlin: Eugen Schachtel. 1910. Pp. 153.

THIS is little more than an illustrated Directory to the German spas, health-resorts, and the mineral springs of neighbouring Continental countries, such as Austria, Switzerland, and Northern Italy. There are useful lists of resident physicians at each place which is briefly described in alphabetical order. A "Table of Indications" (pages 125 to 128) is also a feature in the work, which closes with numerous advertisements and an index of places. At page 74 Leuk, in the Canton of Wallis, is misprinted "Lenk."

The advantage of the book is its conciseness and neatness. It may lie ready at hand for use on the physician's writing-desk in his consulting-room.

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*Landmarks and Surface Markings of the Human Body.* By L. BATHE RAWLING, M.B., B.C. (Cant.); F.R.C.S. (Eng.) Fourth Edition. London: H. K. Lewis. 1911. Demy 8vo. Pp. 96, and 29 Plates.

THE educational value of a surface anatomy depends almost entirely on the method of illustrating the relations of underlying structures to the skin.

The normal modelling and the causes thereof must be fully shown, and yet to attempt both on one plate is to court ruin. Possibly the best method would be to show both a photograph and a corresponding diagram of each part with similarly numbered references, thus abandoning all attempt at superposition.

Even as all anatomy text-books are useless without practical work in the dissecting-room, so surface anatomy manuals can help a student to understand clinical appearances only by emphasising the external effect of internal formation or malformation. To do this, with success, by photographs and diagrams on a plane surface is to our minds so difficult that we regret clinical teaching does not appear sufficient to enable all students to dispense with other aid.

If, however, the illustrations are important, the text should be rigidly explanatory of the figures lest it trespass needlessly. In this respect Mr. Rawling's book is admirable, for its apparent length is due to the fact that much is shown in the plates. The text is arranged in paragraphs, each of which refers to a definite marking. The illustrations are for the most part photographs on which are drawn the underlying structures. The necessary result has been, especially in the regions of the neck and extremities, to entirely lose the natural modelling of the body.

On examining the plates in detail some points are found which need correction. In Figs. I. and II. the cranial sutures are not clearly shown, especially those around the great wing of the sphenoid and pterion. In Fig. III. a single line running forwards across the cheek past the facial artery is described as the facial nerve—a mistake not made in the text. Also the representation of the great vessels in the neck as three widely separated lines is very misleading, while the cricoid cartilage is not shown in any plate illustrating the larynx and trachea. The anterior jugular veins are omitted in both text and illustrations.

In treating the wrist and ankle, extra photographs to show the normal moulding with reference numbers only would be desirable, also one diagram to show together all the structures behind the internal malleolus.

On the whole, we are convinced that this excellent handbook would be more useful if the text were abridged and the illustrations simplified.

PART III.  
MEDICAL MISCELLANY.

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*Reports, Transactions, and Scientific Intelligence*

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ROYAL ACADEMY OF MEDICINE IN IRELAND.

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President—SIR CHARLES BALL, M.D., F.R.C.S.I.  
General Secretary—J. A. SCOTT, M.D., F.R.C.S.I.

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SECTION OF OBSTETRICS.

President—H. JELLETT, M.D., F.R.C.P.I.  
Sectional Secretary—G. FITZGIBBON, M.D., F.R.C.P.I.

*Friday, January 6, 1910.*

THE PRESIDENT in the Chair.

*A Series of Cases illustrating the Operation of Pubiotomy  
(with skiagrams).*

DR. E. HASTINGS TWEEDY exhibited six of nine patients on whom he had performed pubiotomy. The President exhibited one. The three patients not shown lived in the country and could not be brought up to the meeting. They in no way differed from those shown. The most recent operation had been performed eight weeks previously, and four years had elapsed since the first was performed. All the patients walked without discomfort or limping, and had made uneventful recoveries.

THE PRESIDENT said that the case of pubiotomy which he showed was done shortly after his election to the Rotunda. He had not performed the operation before or seen it performed, and, therefore, as he found it easy and the result appeared to be excellent, he considered that other people

ought not to find any difficulty. Dr. Hayes's skiagram showed the condition of the bones very clearly.

DR. MAURICE HAYES said he thought there was a great deal in favour of showing the negative instead of the reproduction of it, as in the latter a lot of the detail is lost. The first patient was Mrs. C. The line of incision through the body of the left pubic bone could be traced in the skiagram. There was bony union. The next negative was of a patient named Mrs. K., who was a patient of Dr. Jellet. The line of incision in this case was very well marked. It ran obliquely downwards and inwards towards the symphysis. There was no union in this case so far, but she was able to walk about already. The next case was Mrs. N. In this the negative showed a separation of the fragments by about three-quarters of an inch in the left pubic bone, through which the incision was made. This patient has, of course, fibrous union. It was a question whether there was any absorption of the separated fragments, but certainly there was a great deal of separation between them. The next case, Mrs. G., had a symphysiotomy. The pubic articulation was indistinct, apparently from callous formation. The separation between the adjacent portions of the os pubis was more marked below than at the upper margin. The next case, Mrs. D., had a pubiotomy and symphysiotomy. The pubic articulation was indistinct, apparently from callous formation. The incision through the left pubic bone could be seen to run vertically downwards. It could also be seen that the separated portion was in three fragments. Whether this was a fracture it was impossible to say, but it did seem something like a comminuted fracture. The articulation at the symphysis was indistinct in this case also. The next case was Mrs. O'T. The line of incision ran downwards and inwards. The upper and inner fragment of the left os pubis has been cut off, resulting in fibrous union. This case was almost a symphysiotomy. The next case was Mrs. L. The line of incision cannot be traced in this negative. There was no doubt of bony union here. The next case was Mrs. S. In this the incision went through the inferior ramus of the left pubic bone, and there was also bony union.

PROFESSOR ALFRED SMITH said that he had never seen so many living specimens and skiagrams. He (Professor Smith) certainly did think, from what he had seen demon-

strated by Dr. Tweedy and also by the skiagrams of Dr. Hayes, that Dr. Tweedy had made out a strong case, and it would require greater arguments to do away with the result. In reference to the skiagrams shown, in one of these there was a case of bony union which had a subsequent normal delivery. This was very interesting, as it showed what did really occur. In this case there was no evidence that there was any increase in the size of the pelvis. He thought the Section should feel grateful to Dr. Tweedy for showing these cases, and he would certainly stand by him at any rate in opposing the English opponents to pubiotomy.

SIR WILLIAM SMYLY said that the operation recommended itself to him very strongly. He certainly thought it a superior operation to symphysiotomy. In some cases one is limited to the operation of pubiotomy or extra-peritoneal Cæsarean section. It was both instructive and interesting to see these women and how well they walk about.

DR. GIBBON FITZGIBBON said—In regard to one of the cases shown in Dr. Tweedy's series, in which he did a symphysiotomy, he remembered the case being done when he was Assistant Master in the Rotunda. That woman had had three children since, the second and third being born by the natural efforts, and one of these weighed 9lbs.; but in the fourth pregnancy an extraperitoneal Cæsarean section had to be done. He asked was there any condition of the pelvis shown in the skiagram to account for this? The interval between the symphysiotomy and the section was four or five years, and he would like to know whether there was callous formation or other change in the pelvis which prevented the natural delivery of the fourth child.

DR. HOLMES said that Dr. Tweedy's splendid series of cases completely proved that pubiotomy was an operation which was going to remain as a definite treatment in midwifery. With regard to union there was considerable doubt as to whether bony union was better than fibrous with regard to future delivery.

DR. NEILL said he knew a case of pubiotomy, and he had delivered the same patient on two previous occasions of healthy living children by induction of premature labour.

DR. TWEEDY said that it would greatly strengthen the hands of any of us going over to London if we could say that we

here in Dublin were solidly in favour of this operation. He was very thankful to Dr. Hayes and Dr. Freeland for bringing down these cases. It would be a very different exhibit if not fortified by the photographs. Not only was the operation successful, but it was the easiest operation one could perform. He was a great believer in the education of modern general practitioners, and thought that any well-informed general practitioner who dared attend a midwifery case in a proper manner was quite competent to perform this operation. Over and over again it has been shown that the subsequent trouble was not due to the pubiotomy but to the tearing of the cervix, or tearing of the vagina. The ordinary operations undertaken by the general practitioner were more difficult than the operation of pubiotomy.

THE PRESIDENT said that although it was quite possible that the subcutaneous operation was preferable, still he was very doubtful as to the advantages gained in using a sharp needle. In his case he had not performed the subcutaneous operation of Bumm, as he had made an incision large enough to admit a finger. He thought this was safer in view of his want of experience.

#### *A Case of Cæsarcan Section for Eclampsia.*

DR. KATHERINE M. N. MAGUIRE read a paper on the above subject.

#### *The Treatment of Eclampsia.*

SIR WILLIAM J. SMYLY read a paper on this subject.

PROFESSOR ALFRED SMITH said—You have all listened to the excellent lines of treatment laid down by Sir William Smyly. Do not go away with the idea that eclampsia occurs only before delivery. A great percentage of cases occurs after delivery. He saw a case occur six days after delivery. This patient had a perfectly natural confinement, but a few days later she had typical scanty urine loaded with albumen. Now this patient was treated by excellent practitioners, who followed the rules of treatment as laid down regarding fluids and diets, and notwithstanding she afterwards developed the typical eclamptic fits. This patient, who had four children, never had any previous trouble. After all that he had heard from Sir William Smyly there was one thing that

impressed itself upon his mind, and that was that the real source of the active cause of eclampsia was not yet discovered. There were probably many causes. When he was Assistant Master of the Rotunda Hospital there was a "run" of cases of eclampsia. All got well following what was then the standardised treatment of potassium bromide and chloral or chloroform, and they thought they had discovered all that was necessary; but then they had a run of bad cases, in which this treatment had no effect whatsoever. Hence the present discussion should stimulate them to come to a definite conclusion, if possible, as to the origin of eclampsia, and to standardise their treatment.

DR. HORNE said a discussion on eclampsia was always of particular interest. There was one clinical fact regarding Dr. Maguire's case, and that was that there was no microscopic examination made of the urine to ascertain as to what was exactly the condition of her kidneys. I quite agree with what Professor Smith said that we get cycles of cases which get well on some particular kind of treatment, and cycles of cases on which this particular kind of treatment had no effect, and hence we are in a mystery as to the exact cause of eclampsia. He mentioned the case of a woman five and a half months pregnant who was seized with convulsions. There was complete amaurosis which lasted for three months. She was kept in hospital till delivery took place. During this time she was kept on a milk diet. When labour set in there was a return of the convulsions. They were all agreed that convulsions coming on after labour is a comparatively rare event. Regarding the treatment of eclampsia, he had adopted the method laid down by Dr. Tweedy of giving morphia, rectal injections and mammary injections, and he was a great believer in large doses of morphia given at once.

DR. HASTINGS TWEEDY said that he would like to suggest another theory as to the cause of the toxæmia that induced eclampsia, as well as the fit itself. He believed that the food eaten was the primary factor in the disease. The pregnant state was, of course, essential in bringing about the altered relations of the food particle to its anti-body, but other predisposing factors were also at work, such as insufficient fluid intake to the system. There was no death amongst the last thirty eclampsies treated in the Rotunda

Hospital, and these statistics covered a period of nearly three years. When the disease had once developed, the administration of even milk is sometimes sufficient to excite a fresh attack of convulsions, and he is in possession of evidence that suggests that an anaphylactic condition is established in respect to food. The treatment consisted of absolute starvation. If the fits recur repeatedly the patient was turned on to the right side, so as to allow the outflow of mucus from the mouth. If they saw the patient getting blue they turned her over with her face towards the ground, and immediately there was an outflow of mucus from the mouth, and an immediate gasp for breath. An internal student saved a case last year by this treatment. He was deterred by the theory of laking of the blood from injecting plain water under the breasts. He substituted bicarbonate of sodium instead of sodium chloride. It was the injection that had been employed for many years in diabetic coma ( $\frac{1}{2}$  dr. to 1 pint of water). The bowels were lavaged with gallons of water repeatedly until there was an action and the system was saturated with morphia. None of his cases died during labour, but a considerable time after labour; the shortest was five hours after delivery and the longest was forty-five hours after delivery. They had now reached the point that they could treat eclampsia successfully, and as long as milk was given to a patient she was not treated successfully, because the patient was saturated with some poison and wanted absolute rest. If a woman was about to die he would perform Cæsarean section; if before labour abdominal section; if during labour vaginal section. The preparation for abdominal section is very long, and the patient was exposed to the manipulations of scrubbing and movements during that time which was highly deleterious. Chloroform was the deadliest drug any woman or man can take suffering from inefficiency of the liver. Ether was better, but it also had its dangers, as it might excite inflammation in the lung. If one delivered through the vagina one could deliver without ether or chloroform or any general anæsthetic.

DR. CROFTON said he was extraordinarily interested to hear Dr. Tweedy's remarks about antibodies. When milk was taken into the stomach it seemed to him it had to be dealt with by live cells, and only that protein which was a natural protein could get into the blood and stimulate the tissues

to form an antibody when these were already present in the tissue juices and in the blood ferment to deal with that protein. He did not think it had to be modified by the stomach cells before it was absorbed, and when it was absorbed it was only the protein from which the patient was living upon before she was born. There was also the question of blood pressure to be considered. Thus people with nephritis of pregnancy had a high blood pressure, and if one gave them nitrites they lost their albumen and they did not get eclampsia when labour came on. Another point he wished to ask Sir William about was whether he had had much bleeding at the time eclampsia came on, because there have been reports in which the fits stopped at once after a large bleeding, and it was essential that the bleeding be continued till the blood pressure was normal.

DR. SHEILL, referring to Dr. Maguire's case of eclampsia, said, although we can have no reasonable doubt that it was a case of eclampsia, still there was a possibility that it was not, for it might have been uræmia or cerebral hæmorrhage. He recalled a case (when he was Assistant Master of the Coombe) which had been diagnosticated as eclampsia, but when a *post-mortem* was made by Prof. McWeeney it was shown to be a case of cerebral hæmorrhage. The reason he made this remark was because the hæmorrhage did not relieve the blood pressure, and diaphoresis was not the rule in eclampsia, but the child having had eclampsia would seem to indicate that it was a genuine case of eclampsia. He also agreed that it was desirable to use more morphia and scopolamine. He did not think Dr. Tweedy's new theory as to the cause of eclampsia was proved. In fact, after what Dr. Tweedy had stated he would almost hesitate to put milk into his tea.

DR. PUREROY said that for many years in Dublin free venesection was the regular treatment for eclampsia, and in a fair number of cases recorded the patients recovered. In the Coombe Hospital the mortality was enormous. He thought venesection valuable in the early stages of a case, and had seen venesection of great use in the latter stages of cases when the convulsions, the condition of the lungs, and the condition of the right heart showed that the patient's life was in danger. So there was still something to be said in favour of the expectant treatment, and the rapid emptying of the uterus is very rarely called for indeed. The argument

against the emptying of the uterus was that the convulsions do not always cease after the uterus was emptied. The principle of the treatment was to eliminate this unknown poison, unless one accepts Dr. Tweedy's theory. He was greatly struck by the plan of treatment adopted by Sir William Smyly of giving more moderate doses of morphia in fixed doses and at regular short intervals. This was a plan of treatment which recommended itself to his mind.

DR. NEILL said he had heard of a case in which a patient got well after forty fits, and the albumen disappeared from her urine. He referred to Dr. Tweedy's method of taking away the milk diet, and said there was a tendency against giving milk at present in enteric, and he had not been giving milk for some time as he thought it too easily underwent fermentation. He would like to ask Dr. Tweedy whether he would agree with giving the patient whey.

DR. TWEEDY.—Fits have come on after whey.

DR. NEILL mentioned a case of eclampsia in which *post-mortem* examination showed that the stomach was empty and the urine had been filled with blood.

DR. FITZGIBBON said with regard to venesection in Sinclair and Johnston's midwifery there was a series of cases which had been at first treated by venesection together with copious purgation, but later on in the series purgation seemed to have been left out, and venesection was continued or increased, and on reading over the results they seemed to be better in the earlier lot of cases, which goes to point that the real benefit was more in the purgation than in the venesection. In the case referred to by Dr. Sheill, which was diagnosticated as eclampsia and which was *post-mortem* found to be cerebral hæmorrhage, he would like to mention a case which he had seen in private with typical eclamptic seizures, and just before he started giving an anæsthetic she had a very violent seizure which lasted for a long time, after which the patient remained in deep coma until she died thirty hours afterwards. She was delivered whilst in coma. He believed the cause of death was cerebral hæmorrhage, because she was completely paralysed on one side of the body. In this case he had no doubt the violent eclamptic fit brought on the cerebral hæmorrhage, and he thought the same remarks applied to the case referred to by Dr. Sheill.

THE PRESIDENT said there seemed to be many interesting

theories of eclampsia, so perhaps he would not be wrong in bringing forward his own, which he had held for some ten years or more, and which the discussion strengthened. The theory was that it was futile to look for one cause to explain all cases of eclampsia; that, in other words, there was no one theory which would fit all cases and ever be translated into a positive fact. It seemed to him that to search for the origin of eclampsia was the same as to search for the origin of the Nile, which came out of a lake, which in turn was fed by a number of rivers. Any of these might be considered to be the source, and all contributed to its waters. If one took a number of cases of eclampsia one would probably find different ætiological factors in most of them, and any of these might be called the factor, but the others were also contributory. With regard to the question of diagnosis he was inclined to agree with Dr. Sheill that there was a great obscurity. With regard to the large number of cases of eclampsia met with by Dr. Tweedy he would probably find that some of his cases could not be classified as eclampsia.

DR. TWEEDY here defined what he considered eclampsia, and said no cases had been included in his list which had not had albuminuria or which had ever had other fits.

THE PRESIDENT said he only wished to show there was extreme difficulty in classifying eclampsia. Cases of eclampsia occurred without albuminuria, and cases of albuminuria may get convulsions which are not eclampsia, and the idea was very prevalent that one should search for a positive cause for them all. Therefore, the time had not yet come when one could talk of the theory which could be translated into a fact.

SIR WILLIAM SMYLY, in reply, said that Stroganoff had a run of three hundred and sixty cases, and Dr. Smith and Dr. Horne had spoken of runs of cases, but had this proved his good treatment? He looked to the person who had the best results, and at the present day it was neck and neck between Dr. Tweedy and Professor Stroganoff. Dr. Tweedy was a great optimist, and he said he was not going to have any more deaths. Professor Stroganoff was also optimistic and he said he was only going to have 2 per cent. of deaths. As to milk diet he remembered Professor Tarnier said if milk was given for five days

there would be no convulsions. He thought that milk was quite a specific, but it might be only so comparatively, and though milk is certainly better than any other kind of food still it might be worse than no food at all, and he quite understood that milk was better than other foods.

DR. MAGUIRE, in reply, said that the patient's urine had been examined microscopically, and granular and hyaline casts found, but not so many as might have been expected with such a quantity of albumen as was present. She thought it would be very difficult to carry out Dr. Tweedy's treatment of giving no food in private practice. She would like to know what Dr. Tweedy would substitute for milk when at last food had to be given, and what he would do if, after prolonged abstinence from food, a patient still persisted in having fits.

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## SECTION OF ANATOMY AND PHYSIOLOGY.

President—PROFESSOR E. P. McLOUGHLIN, M.D.

Sectional Secretary—ADAMS A. McCONNELL, M.B.

*Friday, January 27, 1911.*

THE PRESIDENT in the Chair.

- (a) *Acromegalic Skeleton*; (b) *Femur with Separate Ossific Centre for Third Trochanter*; (c) *Displacements caused by Pleural Effusion* (illustrated by slides).

PROFESSOR A. C. GEDDES demonstrated the skeleton of an acromegalic subject. He showed a series of lantern slides illustrating the change in facies during the twenty-five years of life for which the disease persisted. The record of the dissection of the body was also illustrated by lantern slides. The points to which attention was specially directed were:— (1) The great length of the facial skeleton. This was shown to be due to the great increase in height of the maxillæ. This increase especially affected the alveolar processes of the bones. (2) The mandible was a remarkable bone, the greatest change being the increased length of the body, which was set at an open angle with the ascending ramus. The vertical height of the symphysis was much increased.

(3) The skull vault was in parts enormously thickened, in parts extremely thin. (4) The pituitary fossa was enormous. (5) The vertebral column was completely ankylosed except in the case of the joint between the third and fourth cervical vertebræ. (6) The ribs were very large, more particularly at their anterior ends. (7) The pelvis was enormously broad, and the sub-pubic angle very great. (8) In the limbs the bones showed an extraordinary prominence of the muscular crests with an equally extraordinary degree of atrophy of the general thicknesses of the shafts. (9) The bones of the hands and feet were not unduly large, but there was a considerable coalescence of the carpal and metacarpal and of the tarsal and metatarsal bones. (10) The joints throughout the body showed the changes associated with the so-called disease, rheumatoid arthritis.

A complete report upon the microscopic and macroscopic structure of the soft tissues of this case was published in the *Edinburgh Medical Journal*, March, 1909.

(b) PROFESSOR GEDDES next showed a human femur showing a distinct centre of ossification for the third trochanter. He pointed out that little was to be found in the text-books concerning this centre, and expressed the hope that some of those present would be able to give the meeting some definite information as to its frequency.

(c) PROFESSOR GEDDES' third communication dealt with the mechanical effects of right-sided pleural effusion as they appeared in the body of a male subject hardened with formalin. He drew special attention to the mechanical difficulties to the venous flow which the displacements of the viscera occasioned. The lumen of the inferior vena cava was shown to be partially obliterated as a result of the downward rotation of the apex of the heart round an antero-posterior axis passing through the left margin of the inferior caval opening in the diaphragm. The lumen of the superior vena cava was reduced as a result of the forward rotation of the right lung root, that of the vena azygos major by pressure against the right posterior edge of the right bronchus. He pointed out that these changes were probably exaggerated after death as a result of the loss of the resilience of the tissues, but that there could be no reasonable doubt that the forces which tended to produce them were operative during life, and in cases of considerable pleural accumu-

lation might well become operative and occasion sudden death.

PROFESSOR DIXON referred to the diversity of opinions expressed in the literature on the subject of a separate ossific centre for the third trochanter of the femur. He was inclined to think that such a centre usually existed. In regard to the case of acromegaly he pointed out that apparently those bones of the head that were developed in membrane were chiefly affected, the internal pterygoid plate, for instance, being greatly lengthened, while the external was of normal dimensions.

PROFESSOR SYMINGTON referred to the utility of studying the displacements caused by pathological conditions.

DR. MOORHEAD thought that the investigation of displacements by means of hardening reagents would interfere with the pathological findings. He considered that the anatomical derangements found after death and the clinical picture of the case often did not correspond.

MR. M'ARDLE, MR. HAYES, and DR. CROFTON also spoke.

*Alcohol and Oxygen Inhalations in Cardiac Failure*  
(illustrated by slides).

PROFESSOR COLLINGWOOD described the physiological experiments he had performed on animals which led to the administration of alcohol vapour to man in cardiac failure. He stated that animals with heart failure following the administration of over-doses of chloroform had recovered their blood pressure under positive ventilation with alcohol vapour and oxygen. He gave an account of the clinical application of the treatment and of the very successful results that had been recorded by Dr. W. H. Willcox in the *British Medical Journal* of November 5, 1910. In conclusion he exhibited an apparatus designed for the administration of alcohol with oxygen which was manufactured by Burgoyne & Burbidges, Coleman Street, London, E.C. This apparatus, he said, could be attached permanently to the oxygen cylinder, for by means of a tap either pure oxygen or oxygen mixed with alcohol could be administered at will. He recommended this apparatus as being especially suitable for operating theatres and hospital wards.

MR. M'ARDLE, MR. STOKES, and DR. CROFTON spoke.

*The Topographical Anatomy of the Salivary Glands (with diagrams).*

PROFESSOR SYMINGTON described the shape and relations of the salivary glands illustrated by specimens and drawings. His description was based upon the results of the examination of a series of coronal sections of a head made about half an inch apart. The position and relations of any salivary glands exposed by these sections were drawn. The pieces of each gland were then removed from the slabs and placed in their natural relation to one another so as to demonstrate the shape of the whole gland, while the structures bounding the cavities from which these pieces had been removed were defined. A drawing was then constructed showing the position of the glands, &c., viewed from the lateral aspect. The shape of the parotid gland was considered, and also its deep relations, more especially to the facial nerve and external carotid artery. Attention was drawn to the slight extent to which the submandibular gland reaches forwards on the cervical aspect of the mylo-hyoid and the way in which it extends down the neck over the posterior belly of the digastric into the carotid triangle.

PROFESSOR GEDDES spoke, and PROFESSOR SYMINGTON replied.

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THE XVIIIth INTERNATIONAL CONGRESS OF MEDICINE.

THE XVIIth International Congress of Medicine will meet in London in the summer of 1913. The exact date was fixed by the International Permanent Committee, which assembled for the first time in London on the 21st and 22nd of April, 1911, under the Presidency of Dr. F. W. Pavy. At the same meeting the list of Sections of the Congress was drawn up. Any views or suggestions concerning the arrangement of this list may be sent to the Hon. General Secretary of the Permanent Committee, Prof. H. Burger, Vondelstraat 1, Amsterdam, or to the Bureau of the Committee, Hugo de Grootstraat 10, The Hague. The Committee will be glad to receive, at the same addresses, any information or propositions concerning the organisation of the Congress.

# SANITARY AND METEOROLOGICAL NOTES.

## VITAL STATISTICS.

*For four weeks ending Saturday, March 25, 1911.*

## IRELAND.

THE average annual death-rate represented by the deaths—exclusive of deaths of persons admitted into public institutions from without the respective districts—registered in the week ended March 25, 1911, in the Dublin Registration Area and the twenty-one principal provincial Urban Districts of Ireland was 21.2 per 1,000 of their aggregate population, which for the purposes of these returns is estimated at 1,163,596. The deaths registered in each of the four weeks ended Saturday, March 25, and during the whole of that period in the several districts, alphabetically arranged, correspond to the following annual rates per 1,000. In some cases, owing to deaths not having been registered within the week in which they occurred, the rates do not fairly represent the weekly mortality :—

TOWNS, &c.	Week ending				Average Rate for 4 weeks	TOWNS, &c.	Week ending				Average Rate for 4 weeks
	Mar. 4	Mar. 11	Mar. 18	Mar. 25			Mar. 4	Mar. 11	Mar. 18	Mar. 25	
22 Town Districts	20.4	19.3	17.4	21.2	19.6	Lisburn -	13.6	22.7	13.6	18.2	17.0
Armagh -	6.9	27.5	13.7	13.7	15.5	Londonderry	28.5	15.4	10.7	20.2	18.7
Ballymena	19.2	14.4	33.5	19.2	21.6	Lurgan -	39.8	22.1	22.1	13.3	24.3
Belfast -	17.4	15.4	15.4	19.2	16.9	Newry -	8.4	21.0	33.6	16.8	19.9
Clonmel -	20.5	30.8	5.1	15.4	18.0	Newtownards	34.3	17.2	11.4	5.7	17.2
Cork -	17.8	27.4	16.4	21.9	20.9	Portadown	5.2	15.5	31.0	5.2	14.2
Drogheda -	24.5	16.3	8.2	4.1	13.3	Queenstown	26.4	46.1	26.4	13.2	28.0
Dublin - (Reg. Area)	21.6	21.0	20.8	25.1	22.1	Sligo -	48.0	9.6	—	19.2	19.2
Dundalk -	12.0	19.9	12.0	16.0	15.0	Tralee -	5.3	26.4	21.1	37.0	22.4
Galway -	15.5	15.5	7.8	19.4	14.6	Waterford	33.1	17.5	15.6	13.6	19.9
Kilkenny -	14.7	29.5	21.6	34.3	25.8	Wexford	14.0	9.3	14.0	9.3	11.7
Limerick -	30.1	21.6	15.0	26.0	23.9						

The deaths (excluding those of persons admitted into public institutions from without the respective districts) from certain epidemic diseases registered in the 22 districts during the week ended Saturday, March 25, 1911, were equal to an annual rate of 1.0 per 1,000, the rates varying from 0.0 in nineteen of the districts to 4.1 in Drogheda, the only death for that district being one from measles. Among the 147 deaths from all causes registered in Belfast are one from scarlet fever, 3 from diarrhoeal diseases, and one from diphtheria.

#### DUBLIN REGISTRATION AREA.

The Dublin Registration Area consists of the City of Dublin as extended by the Dublin Corporation Act, 1900, together with the Urban Districts of Rathmines, Pembroke, Blackrock, and Kingstown. The population of this area is 407,057, that of the City being 313,526, Rathmines 37,528, Pembroke 29,368, Blackrock 9,013, and Kingstown 17,622.

In the Dublin Registration Area the births registered during the week ended Saturday, March 25, 1911, amounted to 276—154 boys and 122 girls; and the deaths to 214—114 males and 100 females.

#### DEATHS.

Omitting the deaths (numbering 18) of persons admitted into public institutions from localities outside the Area, the annual rate of mortality was 25.1 per 1,000. During the twelve weeks ending with Saturday, March 25, the death-rate averaged 23.6, and was 2.5 below the mean rate for the corresponding portions of the ten years 1901–1910.

The total deaths (214) included 3 deaths from measles, 6 from whooping-cough, one death from scarlet fever, 2 from enteric fever (exclusive of the death of a person from a locality outside the Area), one from diphtheria, 8 deaths of children under 2 years of age from diarrhoea and enteritis, and one death from influenza. In each of the three preceding weeks deaths from measles had been 7, 7, and 7; deaths of children under 2 years of age from diarrhoea and enteritis had been 2, 3, and 3; deaths from influenza had been 2, 2, and 2; deaths from scarlet fever had been 2, 0, and 0; deaths from enteric fever had been 4, 3, and one; deaths from diphtheria had been 0, 2, and 0; and deaths from whooping-cough had been 11, 4, and 4, respectively.

Of 13 deaths from pneumonia (all forms) there were 5 deaths from broncho-pneumonia and 8 deaths from *pneumonia* (not defined).

The deaths (47) from all forms of tuberculous disease included 32 from pulmonary tuberculosis, 6 from tubercular meningitis, 2 from abdominal tuberculosis, one death from tuberculosis of joints, 3 deaths from tuberculosis of other organs, and 3 deaths from disseminated tuberculosis. Deaths from all forms of tuberculous disease in the three preceding weeks had been 27, 25, and 36, respectively.

Ten deaths were caused by cancer.

Diseases of the brain and nervous system caused 23 deaths; this figure includes the deaths of 2 children under two years of age from meningitis, and 3 deaths of infants under one year from *convulsions*.

Diseases of the heart and blood vessels caused 27 deaths, and bronchitis caused 24 deaths.

Of 5 deaths caused by accident or negligence, 2 were by burns, one being that of a child aged 2 years, and one death by a bicycle accident; there was one death by suicide, and one death of an infant by suffocation in bed.

The deaths of 7 infants were attributed as follow:—One to congenital malformation, 3 to premature birth, and 3 to congenital debility.

In two instances the cause of death was "uncertified," there having been no medical attendant during the last illness. These cases include the death of one infant under one year old.

Fifty-six of the persons whose deaths were registered during the week were under 5 years of age (28 being infants under one year, of whom 11 were under one month old), and 52 were aged 65 years and upwards, including 34 persons aged 70 and upwards: among the latter were 20 aged 75 and upwards, of whom three (a male and 2 females) were stated to have been aged 92, 90, and 97 years, respectively.

The Registrar-General points out that the names of the cause of death printed above in italics should be avoided whenever possible in Medical Certificates of the Cause of Death.

#### STATE OF INFECTIOUS DISEASE IN THE DUBLIN REGISTRATION AREA AND IN BELFAST.

The usual returns of the number of cases of infectious diseases

notified under the "Infectious Diseases (Notification) Act, 1889," and the "Tuberculosis Prevention (Ireland) Act, 1908," as set forth in the following table, have been furnished by Sir Charles A. Cameron, C.B., M.D., Medical Superintendent Officer of Health for the City of Dublin; Mr. Fawcett, Executive Sanitary Officer for Rathmines and Rathgar Urban District; Mr. Manly, Executive Sanitary Officer for Pembroke Urban District; Mr. Heron, Executive Sanitary Officer for Blackrock Urban District; by the Executive Sanitary Officer for Kingstown Urban District; and by Dr. Bailie, Medical Superintendent Officer of Health for the City of Belfast.

TABLE SHOWING THE NUMBER OF CASES OF INFECTIOUS DISEASES notified in the Dublin Registration Area (viz.—the City of Dublin and the Urban Districts of Rathmines and Rathgar, Pembroke, Blackrock, and Kingstown), and in the City of Belfast, during the week ended March 25, 1911, and during each of the preceding three weeks. An asterisk (\*) denotes that the disease in question is not notifiable in the District.

CITIES AND URBAN DISTRICTS	Week ending	Small-pox	Measles	Rubella, or Epidemic Rose Rash	Scarlet Fever	Typhus	Relapsing Fever	Diphtheria	Membranous Croup	Pyrexia (origin uncertain) <sup>a</sup>	Enteric or Typhoid Fever	Erysipelas	Puerperal Fever	Whooping-cough	Cerebro-spinal Fever	Tubercular Phthisis ( <i>Phtisis</i> )	Total
City of Dublin	Mar. 4	-	•	•	9	-	-	11	-	2	2	9	1	•	-	17	57
	Mar. 11	-	•	•	17	-	-	10	-	1	13	1	•	•	-	16	63
	Mar. 18	-	•	•	13	-	-	6	-	3	1	1	•	•	-	12	48
	Mar. 25	-	•	•	11	1	-	8	-	3	13	9	-	•	-	10	58
Rathmines and Rathgar Urban District	Mar. 4	-	•	•	1	-	-	4	-	-	4	1	-	•	•	•	10
	Mar. 11	-	•	•	2	-	-	5	-	-	-	-	-	•	•	•	7
	Mar. 18	-	•	•	1	-	-	1	-	-	-	-	-	•	•	•	2
	Mar. 25	-	•	•	-	-	-	2	-	-	1	-	-	•	•	•	3
Pembroke Urban District	Mar. 4	-	2	-	-	-	-	1	-	1	-	-	-	5	-	-	9
	Mar. 11	-	7	-	1	-	-	1	-	-	-	-	-	10	-	-	19
	Mar. 18	-	7	-	2	-	-	2	-	-	-	-	-	-	-	-	11
	Mar. 25	-	4	-	-	-	-	-	-	-	-	-	-	2	-	-	12
Blackrock Urban District	Mar. 4	-	•	•	1	-	-	1	-	-	-	-	-	•	-	•	2
	Mar. 11	-	•	•	-	-	-	1	-	-	1	-	-	•	-	•	2
	Mar. 18	-	•	•	6	-	-	-	-	-	-	-	-	•	-	•	6
	Mar. 25	-	•	•	3	-	-	-	-	-	-	-	-	•	-	•	3
Kingstown Urban District	Mar. 4	-	•	•	-	-	-	-	-	-	-	-	-	•	•	-	-
	Mar. 11	-	•	•	-	-	-	1	-	-	-	-	-	•	•	-	1
	Mar. 18	-	•	•	-	-	-	-	-	-	1	-	-	•	•	-	1
	Mar. 25	-	•	•	-	-	-	-	-	-	-	-	-	•	•	-	-
City of Belfast	Mar. 4	-	•	•	12	-	-	10	-	-	-	6	-	•	-	16	41
	Mar. 11	-	•	•	12	-	-	8	-	-	1	7	-	•	-	10	38
	Mar. 18	-	•	•	13	-	-	3	-	-	-	5	-	•	-	6	27
	Mar. 25	-	•	•	6	-	-	3	1	-	-	2	-	•	-	11	23

The Registrar of Belfast Urban No. 15 District reports: "One case of epidemic cerebro-spinal meningitis."

<sup>a</sup> Continued Fever.

**CASES OF INFECTIOUS DISEASES UNDER TREATMENT IN DUBLIN HOSPITALS.**

During the week ended March 25, 1911, 23 cases of measles were admitted to hospital, 19 were discharged, and 41 cases remained under treatment at its close.

One case of typhus was admitted to hospital during the week, and remained under treatment in hospital at the close of the week.

Nine cases of scarlet fever were admitted to hospital, 34 were discharged, there was one death, and 112 cases remained under treatment at the close of the week. This number is exclusive of 20 convalescents from the disease under treatment in Beneavin, Glasnevin, the Convalescent Home of Cork Street Fever Hospital. At the close of the 3 preceding weeks the cases in hospital had been 118, 124, and 138 respectively.

Fourteen cases of diphtheria were admitted to hospital, and 15 were discharged. The cases in hospital, which, at the close of the 3 preceding weeks had numbered 84, 64, and 64, respectively, were 63 at the close of the week under notice.

Nine cases of enteric fever were admitted to hospital during the week, 10 were discharged, there were 2 deaths, and 79 cases remained under treatment in hospital at the close of the week, the respective numbers in hospital at the close of the three preceding weeks being 92, 85, and 82.

In addition to the above-named diseases, 4 cases of pneumonia were admitted to hospital, 9 were discharged, and 23 cases remained under treatment at the end of the week.

**ENGLAND AND SCOTLAND.**

The mortality in the week ended Saturday, March 25 in 77 large English towns, including London (in which the rate was 15.7), was equal to an average annual death-rate of 15.2 per 1,000 persons living. The average rate for 8 principal towns of Scotland was 17.2 per 1,000, the rate for Glasgow being 17.4, and for Edinburgh 13.4.

**INFECTIOUS DISEASE IN EDINBURGH.**

The Registrar-General has been favoured by A. Maxwell Williamson, M.D., B.Sc., Medical Officer of Health for Edinburgh, with a copy of his Return of Infectious Diseases notified during

the week ended March 25. From this report it appears that of a total of 62 cases notified, 22 were of scarlet fever, 18 of phthisis, 17 of diphtheria, 2 of enteric fever, and 3 of erysipelas.

Among the 419 cases of infectious diseases in hospital at the close of the week were 165 cases of scarlet fever, 57 of measles, 60 of phthisis, 23 of whooping-cough, 75 of diphtheria, 3 of enteric fever, 15 of erysipelas, one of puerperal fever, and 12 of chicken-pox.

#### METEOROLOGY.

*Abstract of Observations made in the City of Dublin, Lat. 53° 20' N., Long. 6° 15' W., for the Month of March, 1911.*

Mean Height of Barometer,	-	-	-	29.968 inches.
Maximal Height of Barometer (25th, at 9 p.m.),				30.400 „
Minimal Height of Barometer (10th, at 4 p.m.)				29.559 „
Mean Dry-bulb Temperature,	-	-	-	42.3°.
Mean Wet-bulb Temperature,	-	-	-	40.0°.
Mean Dew-point Temperature,	-	-	-	37.0°.
Mean Elastic Force (Tension) of Aqueous Vapour				.222 inch
Mean Humidity,	-	-	-	82.5 per cent.
Highest Temperature in Shade (on 2nd),	-	-	-	57.2°.
Lowest Temperature in Shade (on 17th),	-	-	-	31.6°.
Lowest Temperature on Grass (Radiation) (17th),				29.1°.
Mean Amount of Cloud,	-	-	-	65.7 per cent.
Rainfall (on 17 days),	-	-	-	.1.664 inches
Greatest Daily Rainfall (on 30th),	-	-	-	.272 inch.
General Directions of Wind,	-	-	-	N.W., E.N.E.

#### Remarks.

A rather cold, dull month—characterised by two distinct types of weather. During the first twelve days it was very changeable and unsettled. Large and deep atmospheric depressions swept eastwards along the Arctic Circle, while their secondaries, assuming a V-shaped form, travelled in the same direction across the British Isles to the Continent. The winds were therefore westerly, varying between S.W. and N.W. as the several depressions came and went. Rain fell frequently, and exceeded the average along the Atlantic seaboard and the coast-line of the English Channel. On the 12th a depression travelled

from Cornwall to Belgium, Holland, and Schleswig-Holstein. Strong N. and N.W. winds in its rear carried polar air southwards over the British Islands, and a period of cold weather set in which lasted almost to the end of the month—with one or two brief intervals in England. On the 17th a depression from the Atlantic appeared over the Bay of Biscay, and the wind drew into E. and freshened. In most parts of Ireland the following 10 days were rainless, but showers of hail, sleet and snow were reported from many British stations. During the last week shallow depressions moved north-westwards from the Continent to Ireland, and rain fell frequently and abundantly in the Dublin district—the measurement in the city amounting to .945 inch on the last 5 days of the month.

In Dublin the arithmetical mean temperature ( $43.3^{\circ}$ ) was  $0.4^{\circ}$  below the average ( $43.7^{\circ}$ ). The mean dry-bulb readings at 9 a.m. and 9 p.m. were  $42.3^{\circ}$ . In the forty-seven years ending with 1911. March was coldest in 1867 and 1883 (M.T. =  $39.0^{\circ}$ ), and warmest in 1903 (M.T. =  $48.1^{\circ}$ ). In 1910 the M.T. was  $44.8^{\circ}$ .

The mean height of the barometer was 29.968 inches, or 0.052 inch above the corrected average value for March—namely, 29.916 inches. The mercury rose to 30.400 inches at 9 p.m. of the 25th and fell to 29.559 inches at 4 p.m. of the 10th. The observed range of atmospheric pressure was, therefore, .841 inch.

The mean temperature deduced from daily readings of the dry-bulb thermometer at 9 a.m. and 9 p.m. was  $42.3^{\circ}$ . Using the formula, *Mean Temp.* = *Min.* + (*Max.* — *Min.*  $\times .485$ ) the M.T. becomes  $43.2^{\circ}$ . The arithmetical mean of the maximal and minimal readings was  $43.3^{\circ}$ , compared with a thirty-five years' (1871–1905) average of  $43.7^{\circ}$ . On the 2nd the thermometer in the screen rose to  $57.2^{\circ}$ —wind, W.; on the 17th the temperature fell to  $31.6^{\circ}$ —wind, W.N.W. The minimum on the grass was  $29.1^{\circ}$  on the 17th.

The rainfall was 1.664 inches, distributed over 17 days. The average rainfall for March in the thirty-five years, 1871–1905 inclusive, was 1.910 inches, and the average number of rain-days was 17. The rainfall, therefore, was below, while the rain-days were equal to, the average. In 1867 the rainfall in March was very large—4.972 inches on 22 days. On the other hand, the smallest March rainfall was .288 inch on 8 days in 1893. In 1910 the rainfall was only .923 inch on 11 days.

The atmosphere was foggy on the 29th and 31st. High winds were noted on 8 days, reaching the force of a gale on only 2 days—the 18th and 28th. A solar halo appeared on the 5th and 10th, and a lunar halo on the 7th. There was an aurora on the night of the 4th. Hail fell on the 6th, 12th, 13th and 17th. Temperature reached or exceeded  $50^{\circ}$  in the screen on 7 days, compared with 18 days in 1910, 6 days in 1909, 10 days in 1908, 25 in 1907, 17 in 1906, 20 in 1905, 10 in 1904, 18 in 1903, 23 in 1902, and only 6 in 1901. It fell to  $32^{\circ}$  in the screen on 3 nights. The minima on the grass were  $32^{\circ}$  or less on 6 nights, compared with 11 nights in 1910, 14 nights in 1909, 16 in 1908, 9 in 1907, 12 in 1906, 8 in 1905, 13 in 1904, 4 in 1903, 5 in 1902, and 11 in 1901.

The rainfall in Dublin during the three months ending March 31st amounted to 3.292 inches on 44 days, compared with 7.674 inches on 52 days in 1910, 4.550 inches on 41 days in 1909, 6.367 inches on 58 days in 1908, 3.666 inches on 42 days in 1907, 7.291 inches on 59 days in 1906, and a thirty-five years' (1871–1905 inclusive) average of 6.130 inches on 50.0 days.

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At the Normal Climatological Station in Trinity College, Dublin, the observer, Mr. C. D. Clark, reports that the mean height of the barometer was 29.963 inches, the highest reading observed being 30.412 inches at 9 p.m. of the 25th, the lowest, 29.626 inches at 9 p.m. of the 12th. The mean temperature was  $43.4^{\circ}$ , the mean dry-bulb reading at 9 a.m. and 9 p.m. being  $42.7^{\circ}$ . The screened thermometers rose to  $57.5^{\circ}$  on the 2nd, and fell to  $32.0^{\circ}$  on the 14th. The grass minimum was  $23.3^{\circ}$  on the 17th. The mean daily maximum was  $48.3^{\circ}$ , and the mean daily minimum,  $38.5^{\circ}$ . Rain fell on 11 days to the amount of 1.302 inches, .230 inch being measured on the 31st. There were 8.3 hours of bright sunshine on the 9th. The mean temperature of the soil at 9 a.m. at a depth of one foot was  $43.1^{\circ}$ ; at a depth of 4 feet it was  $41.6^{\circ}$ .

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Dr. C. Joynt, F.R.C.P.I., returns the rainfall at 21 Leeson Park, Dublin, at 1.705 inches on 14 days, .330 inch being measured on the 28th.

Mr. T. Bateman returns the rainfall at The Green, Malahide, Co. Dublin, at 1.41 inches on 14 days. The greatest rainfall in

24 hours was .365 inch on the 31st. The extremes of temperature in the shade were—highest, 57°, on the 2nd; lowest, 27°, on the 6th. The mean temperature was 39.6°.

Captain Edward Taylor, D.L., returns the rainfall at Ardgillan, Balbriggan, Co. Dublin, at 1.78 inches on 16 days. The amount was .25 inch below the average, and the rain-days were one in defect. Up to March 31st, the rainfall at Ardgillan amounted to 5.24 inches, or 1.06 inches short of the average, and the rain-days were 44, or 6 below the average number for the first quarter of the year. The thermometers in the screen rose to 57.7° on the 2nd and fell to 29.1° on the 7th.

Dr. Arthur S. Goff reports that at Lynton, Dundrum, Co. Dublin, rain fell on 18 days to the amount of 1.74 inches, compared with an average of 2.64 inches on 20 days in the 10 years ended with 1910. The greatest daily rainfall was .25 inch on the 30th. The temperature in the shade ranged from 56° on the 2nd to 31° on the 17th. The mean shade temperature was 42.2° compared with a ten years' (1901–1910) average of 43.7°. There were hail showers on the 13th and 17th.

At Manor Mill Lodge, Dundrum, Co. Dublin, Mr. George B. Edmondson recorded a rainfall of 1.60 inches on 19 days, the maximum in 24 hours being .30 inch on the 31st. The mean temperature of the month was 42.0°, the extremes being—highest, 53° on the 8th; lowest, 31° on the 7th and 17th.

Miss C. Violet Kirkpatrick measured 1.29 inches of rain on 20 days at Cheeverstown Convalescent Home for Little Children, Clondalkin, Co. Dublin. The largest amount for 24 hours was .27 inch on the 3rd.

Mrs. Olive F. Symes reports a rainfall of 1.30 inches on 16 days at Druid Lodge, Killiney, the greatest measurement in 24 hours being .23 inch on the 28th. At Killiney the average rainfall for March in the 24 years, 1885–1908, inclusive, was 1.948 inches on 17 days. Since January 1, 1911, the rainfall at Druid Lodge has been 2.76 inches on 35 days.

At the Ordnance Survey Office, Phoenix Park, Dublin, rain fell on 19 days to the total amount of 1.678 inches, the largest measurement being .270 inch on the 3rd. The duration of bright sunshine was 109.3 hours, of which 10.0 hours occurred on the 27th.

Dr. J. H. Armstrong reports that at Coolagad, Greystones, Co

Wicklow, 1.39 inches of rain fell on 18 days. The maximal fall in 24 hours was .23 inch on the 28th.

At Clonsilla, Greystones, Co. Wicklow, Dr. W. Stewart Ross recorded a rainfall of 1.32 inches on 15 days, the maximum in 24 hours being .18 inch on the 28th. The mean temperature of the month was  $42.8^{\circ}$ , the mean maximum being  $46.8^{\circ}$ , and the mean minimum  $38.7^{\circ}$ . The thermometer rose to  $62^{\circ}$  on the 4th and fell to  $34^{\circ}$  on the 13th, 14th, and 15th.

Dr. J. T. Crowe, Resident Medical Officer, reports that the rainfall at the Royal National Hospital for Ireland for Consumption, Newcastle, Co. Wicklow, was 1.51 inches on 22 days, the maximal fall in 24 hours being .19 inch on the 10th and 28th. The mean air temperature was  $42.1^{\circ}$ —the extremes being—highest,  $56.2^{\circ}$  on the 2nd; lowest,  $32.0^{\circ}$  on the 14th. The mean maximum was  $47.4^{\circ}$ , the mean minimum,  $36.8^{\circ}$ .

Mr. W. Miller registered 2.81 inches of rain at Cork on 21 days. The greatest fall in 24 hours was .65 inch on the 18th. The rainfall was 0.14 inch more than the average for March. The rainfall of the first quarter of 1911 was 5.94 inches, or 4.10 inches less than the average. The rain-days in the quarter numbered 46, being 6 under the average.

The Rev. Arthur Wilson, M.A., writing from Dunmanway Rectory, Co. Cork, states that 5.31 inches of rain fell there on 21 days, .84 inch being measured on the 18th. There was a slight fall of snow on the morning of the 9th. The rainfall of the first quarter of 1911 at Dunmanway equals 13.92 inches—an amount which is 1.33 inches under the average (15.25 inches) for the last 6 years. Frost occurred on 9 days.

At Derreen, Kenmare, Co. Kerry, Mr. William Holbrow measured 4.42 inches on 16th, the greatest fall in 24 hours being .88 inch on the 9th. There were gales on the 17th, 18th, and 19th. Frost occurred on the 26th, 27th, and 29th.

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#### LITERARY INTELLIGENCE.

MESSRS. J. & A. CHURCHILL announce the publication of an important new "Text-book of Diseases of the Skin," by Dr. J. H. Sequeira, Lecturer and Physician to the Skin Department at the London Hospital. The volume is superbly illustrated with 44 beautiful plates, reproduced direct from colour photographs, and 179 illustrations in the text. The latest results of the treatment of syphilis by "606" are given.

## PERISCOPE.

### DUBLIN HOSPITALS TUBERCULOSIS COMMITTEE.

THE Third Annual Meeting of the above Committee was held on Wednesday, April 12th, 1911. Sir John Moore in the chair. Also present:—Her Excellency the Countess of Aberdeen, Drs. Cox, Drury, Delahoyde, Lumsden, Kirkpatrick, Garland, and F. Dunne, and the Hon. Secretary, Sir Wm. J. Thomson. Apologies were received from Sir Arthur Chance, Dr. Brown, Medical Inspector, Local Government Board, and Dr. Peacocke.

The following Reports for the year ended February, 1911, were laid before the Committee, considered, and adopted:—Dr. Daniel's Report, Reports of Nurses Fitzsimon, Mulcahy, McWilliam, and of Nurse O'Brien, Sutton Holiday Home; also a Report from Mrs. A. M. Sullivan, Chairman of the Samaritan Committee.

From the last-named Report it appears that the sum of £93 15s. was spent by the Samaritan Committee during the year as follows:—

186 families received nourishment—eggs, milk, meat, meal, &c.

176 patients received shoes, clothes, bedding, &c.

14 families had rent paid for them while the bread-winner was at Newcastle or in one of the Dublin Union Hospitals.

91 children of parents suffering from tuberculosis were sent to the country through the Fresh Air Fund.

1 child was boarded out while the mother was in hospital.

6 children were sent to schools or institutions after parents' death.

One patient was sent to Newcastle, and the sum of £3 17s. was paid in advance for ten weeks.

From a summary of the reports of the work done by the three Tuberculosis Nurses in Dublin, it seems that 394 patients were attended by them during the year (as contrasted with 362 during the previous year), and 6,845 visits in all were paid.

The Report of the Inspection of the three Tuberculosis Nurses working in Dublin, by the Queen Victoria's Jubilee Institute for Nurses, was brought under the notice of the Committee, and was considered highly satisfactory. It read as follows:—

“The preventive and humane work of the Tuberculosis Nurses working under the Women's National Health Asso-

ciation in Dublin is being successfully carried on. It is quiet and far-reaching, and the new development of the Tuberculosis Classes, which were started in December of last year, will be a decided factor in helping to reduce the death-rate from this disease in the future."

#### THE BOYLE MEDAL OF THE ROYAL DUBLIN SOCIETY.

ON Tuesday, April 25, 1911, the Boyle Medal, so called after the old-time Irish Scientist, the Hon. Robert Boyle, founder of the Royal Society, and instituted in the year 1896, was awarded for the third time, the recipient on this occasion being Dr. John Joly, D.Sc., F.R.S., Professor of Geology in the University of Dublin. Glowing tributes to Professor Joly's scientific researches and work were paid by Sir Howard Grubb, F.R.S., Vice-President of the Royal Dublin Society and Chairman of the meeting, and by Dr. J. Malet Purser. The other recipients of the Medal were Dr. George Johnstone Stoney and the late Dr. Thomas Preston.

#### AMERICAN PROCTOLOGIC SOCIETY.

THE Twelfth Annual Meeting was held at St. Louis, Mo., on Monday and Tuesday, June 6 and 7, 1910, the President, Dr. Dwight H. Murray, of Syracuse, N.Y., in the chair. The following were elected Honorary Fellows:—Mr. F. Swinford Edwards, Mr. W. W. Wallis, and Mr. P. Lockhart Mummery, and Mr. W. Ernest Miles, all of London, England. The following were elected active Fellows of the Society:—Dr. Horace Samuel Heath, 320 Temple Court Buildings, Denver, Col.; Dr. Stanley G. Zinke, 222 Fifth Avenue, Leavenworth, Kansas; Dr. Granville S. Hanes, Masonic Temple, Louisville, Ky.

The preliminary programme of the Thirteenth Annual Meeting of this Society has now been issued. The meeting will take place on Monday and Tuesday, June 26 and 27, 1911, at Los Angeles, California. The headquarters and place of meeting will be the Hotel Alexandria, Cor. 5th and Spring. The profession is cordially invited to attend all meetings. The following are the officers of the Society for 1911:—President, George J. Cooke, M.D., Indianapolis, Ind.; Vice-president, Jerome M. Lynch, M.D., New York City, N.Y.; Sec.-Treas., Lewis H. Adler, Jr., M.D., Philadelphia, Pa. *Executive Council*—Dwight H. Murray, M.D., Chairman, Syracuse, N.Y.; George J. Cook, M.D., Indianapolis, Ind.; Louis J. Hirschman, M.D., Detroit, Mich.; Lewis H. Adler, Jr., M.D., Philadelphia, Pa.; the Official

Stenographer, Miss Lulu Gay, Philadelphia, Pa. The annual address of the President will be on "Proctologic Recommendations."

LITERARY NOTE.

MESSRS. BAILLIÈRE, TINDALL & COX announce that the new edition of Green's "Pathology" will be ready for publication by the end of April. It has again been revised by Dr. Bosanquet, much new material has been added, and re-arrangement of subjects has been made. Its formation has also been modified for inclusion in the well-known "University Series of Manuals," which contains such popular volumes as Rose & Carless "Surgery," Stewart's "Physiology," Monro's "Medicine," Jellett's "Midwifery," and Buchanan's "Anatomy." The price will be 15s. net instead of 18s. net as hitherto.

V. E. M., 1911.

THE Eleventh "Voyage d'Études Médicales" (V. E. M.) will take place from August 28 to September 11, 1911, under the efficient presidency of Professor Landougy. The route will embrace the health-resorts of the South-east of France, which will be visited in the following order:—Vals, Mont-Mirail, Lamalou, Alet, La Fou-Saint-Paul-de-Fenouillet, Prats-de-Mollo, La Preste, Amélie-les-Bains, Le Boulon, Banyuls-sur-Mer, Molitg, Le Vernet, Thuès, Mont-Louis, Font-Romeu, Les Escaldes, Ax-les-Thermes, Ussat, Aulus, Salies-du-Salat. Half fares will be charged for all railway tickets from the place of residence in France to Lyons, the place of rendezvous. Foreign physicians benefit by this reduction in fares from the station at which they enter upon French soil. The same reduction is granted, at the close of the tour, from the place at which it terminates—namely, Toulouse—for the return journey to the railway station from which the tourist started in the first instance. From Lyons to Toulouse the contract-fare will be 350 francs (£14), inclusive of railway fares (first-class), conveyances, hotels, provisions, carriage of luggage, gratuities. Those who wish to join this attractive excursion should apply to Dr. Carron de la Carrière, 2 Rue Lincoln, or to Dr. Jouaust, 4 Rue Frédéric-Bastiat, Paris, who will give full information.

THE QUEEN'S UNIVERSITY OF BELFAST.

*M.B. Degree Examination—(Spring, 1911).*—The following candidates have passed:—Samuel Campbell, Philip J.

Gaffikin, George S. Glass, William S. Haydock, Robert J. M'Feeters, John P. J. M'Givern, Ulick J. G. Mulligan, William Paul (with Second Class Honours), Alfred H. Rentoul. The following candidate has passed in Medical Jurisprudence and Hygiene:—James Park. *D.P.H. Examination.*—The following candidates have passed:—George F. Campbell, John E. Clements, John Dodd, James M'Gill.

#### THE CAMPAIGN AGAINST TUBERCULOSIS IN IRELAND.

THE first paper in the April number of *The British Journal of Tuberculosis* is from the pen of Her Excellency the Countess of Aberdeen, President of the Women's National Health Association of Ireland. In this paper Lady Aberdeen gives an interesting account of the work done by the Association within the last two years in the endeavour to combat tuberculosis. The article includes brief descriptions of the Alan A. Ryan Home Hospital on the Pigeon House Road, Dublin; of the Holiday Home at Sutton, Co. Dublin; and of the Clifden Health Home, Co. Galway.

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#### NEW PREPARATIONS AND SCIENTIFIC INVENTIONS.

##### *" Wellcome " Brand Concentrated Diphtheria Antitoxin.*

MESSRS. BURROUGHS WELLCOME & Co., of London, are issuing a preparation of concentrated diphtheria antitoxin which has certain advantages over the ordinary diphtheria antitoxin serum. It is prepared at the Wellcome Physiological Research Laboratories according to the latest approved methods of salt-precipitation. On account of its concentration large doses can be given in comparatively small volume—a point of considerable importance since large doses of antitoxin are the rule in the treatment of diphtheria, and the bulk of the serum is a factor which may militate against their being given. It is stated by some authorities that serums treated by the method used in preparing " Wellcome " Concentrated Diphtheria Antitoxin are less liable than the ordinary unconcentrated serums to produce rashes and other undesirable symptoms in susceptible patients. " Wellcome " Brand Concentrated Diphtheria Antitoxin is issued in hermetically-sealed phials of 1,000, 2,000, 3,000, 4,000, and 5,000 Ehrlich-Behring units, each 1,000 units being contained in 1 c.c. or less of fluid.

# THE DUBLIN JOURNAL

OF

## MEDICAL SCIENCE.

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JUNE 1, 1911.

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### PART I.

### ORIGINAL COMMUNICATIONS.

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ART. XVI.—*Some Failures and Successes from my Case-Books.*<sup>a</sup> By SPENCER SHEILL, F.R.C.P.I., &c.

I HAVE selected as my present subject a “*pot pourri*” from my case-books, and will beg your indulgence if I present it in the form of a kaleidoscopic picture of failure and success—of confession and boast if you will.

I hope I have not a larger percentage of failures in my practice than my fellow-specialists; but I say—“Preserve me from the man who *never* has a failure”; he has either no practice or no conscience.

It is by our mistakes we learn, and I believe it would be to our mutual advantage if all of our Fellows would record here before the Section their failures as well as their successes, in order that others might draw a moral therefrom, instead of, as is the present custom, recording only the successes, leaving the failures to be hushed up, or, what is much more likely, to be retailed to our rivals with considerable risk of losing nothing in the telling.

<sup>a</sup> Read before the Section of Obstetrics in the Royal Academy of Medicine in Ireland on Friday, November 25, 1910.

In these few selected cases I hope you may find food for thought and material for comment. I shall be very pleased afterwards to hear remarks that may guide me in the future, even should they be painfully to the point, for doubtless my critics shall one day be on this "stool of repentance" also.

Allow me first to introduce you to a patient—a lady of young-middle age or of late youth, which you will—perhaps better known as "of uncertain age." If her age was uncertain her aims were very definite—that is, her one and only ambition in life seemed to be motherhood. She had suffered much at the hands of physicians, having attended the consulting-rooms of no less than four gynecologists previous to coming to me. None of them had agreed as to diagnosis; but, of course, that was not to be expected, seeing that they were not treating the patient *in consultation* with each other, which makes all the difference. One had curetted her, the others had treated her locally and medicinally; but all had encouraged her—yea, filled her with hopes, almost promised her—and all had made deep inroads into her husband's banking account.

Her history seemed to indicate undeveloped internal genital organs, and bimanual examination lent support to that view. Having extracted a fee, I promised to tell her not only the truth, but the whole truth. I did so, and gave her no hope; result—I have never seen her as a patient since, and although that is six or seven years ago her hopes have shown no sign of being realised. I was richer by a guinea, while the other doctors between them relieved her of well over a hundred guineas. I leave it to you to say if I was the absolute fool, the honest fool, or the fool at all. At the same time it might be wiser not to ask me what I have done since in similar cases.

One of the most painful cases I have had to deal with occurred one Christmas time. The confinement over some seven or eight weeks, and patient and baby both

normal. An urgent call one night revealed to me my patient a raving lunatic, her husband endeavouring to pacify her. She had been nursing her baby, so call it "lactational insanity" if you will, but it certainly was not caused by the stress of nursing, as the history will help to show. I found out later facts that had previously been hidden from me—there was lunacy on both sides of the family, and she had been mentally astray in a previous confinement in England. A couple of days later her removal to a private asylum became necessary. It took three strong men and two women to rope her securely for removal. She was pronounced by an expert psychologist to be a very rare case, and she died about six weeks after the first symptom. Should we not all be very strong advocates of forbidding marriage by law where there is a bad family history; or, better still, should not legal sterilisation be practised in order to avoid such misery as this? Just think of this case for a moment and you will not hesitate. A mother dead in acute lunacy, two attempted suicides, and one death in an asylum on *her* family's side. Her husband of "erratic" habits, and a suicide and an attempted suicide in *his* family. God help the two or three children who were the fruit of this union.

The next case is one of my nightmares. I remember a famous Dublin surgeon telling me years ago of how he always tried to avoid a meeting with a certain cripple, who delighted to shower praises upon him on each occasion. The man loved the surgeon, but the surgeon's conscience smote him (if men of their cloth possess such a thing), as this case was one of his glaring failures; but the victim knew it not. Well, so it is with my case. A healthy woman, in normal labour with a very large child, but a coward at bearing pain, anxious, and almost angry, relatives. A keen but inexperienced doctor, and in truth the most anxious of all those present. Details are unnecessary, but a craniotomy and extraction followed with appalling laceration of the soft parts. She recovered

well, and ever since has sung my praises for "saving her life"; but let us draw a curtain over my feelings. This patient was a martyr in the cause of science unknowingly; for this experience has since enabled me to save two others from the same fate, where those who called me in consultation believed that this dreadful operation was urgently called for.

To turn now to a somewhat more pleasant subject. Here are brief notes of a few of my cases of threatened abortion. One patient was the subject of four abortions caused by a pedunculated fibroid hanging from the peritoneal aspect of the fundus uteri, and retroverting and irritating the organ. I removed the tumour and suspended the uterus. At the sixth or seventh week of her next pregnancy signs and symptoms of threatened abortion again became evident, and, despite my best efforts, an ovum came away. There were signs of a second ovum being in the uterus, and this suspicion was strengthened—or perhaps the idea was put into my head—by her previous history of having aborted twins; so I took the now proverbial course of "wait and see." My *waiting* was rewarded, and I have lately *seen* the child—a fine lad of over two years, and in the best of health.

It is surprising what a number of apparently hopeless cases of so-called "inevitable abortion" may be brought to a successful issue if the expectant treatment be persevered with. Two good examples of this come to my mind out of a considerable number of successful cases which it has been my good fortune to conduct. One, an elderly primigravida, had three successive bleedings, two of them being somewhat alarming in amount—that is to say, alarming from the point of view of saving the pregnancy. Accompanying the last one there was some pain, doubtless caused by the dilating os, which was somewhat patulous. I am a great believer in opium in these cases; as much of it as the circumstances demand, in combination with the other usual treatment. All her

married relations and friends agreed and advised—"Nothing," they said, "could save the pregnancy." "Who ever heard of a living child after so much hæmorrhage?" and so on *ad nauseam*. The lady, I have said, was not young, and much depended upon an offspring. I persisted, and luckily for me the patient had unbounded faith—faith which would have done credit to a Christian scientist. To shorten the story, all went well, and she now has a lovely child of over a year old. This child should have a real horror of the word "curette," did she only know how very near she had been to being cut off at so early a period of her intra-uterine career.

The other case was that of a 2-para with symptoms similar to the last one. The treatment was almost identical, also the result. But this case, had it gone wrong, would not have cost me such a fall as the last one described, for the latter was an instance of a childless woman at the time, and I was obliged to work against all the sarcasms and discouragement of ignorant pseudo-friends.

I do not stand before you to advance any foolish view that *all* threatened abortions may be saved—that depends upon so many other circumstances besides the mere bleeding. It might even be undesirable to save some of the markedly syphilitic ones. But what I *do* say is that there is undoubtedly a large number of cases in which the word "inevitable," and with it the finger or blunt curette is introduced too early upon the scene. Whilst I would be a strong opponent of permitting the symptoms of threatened abortion to drain away the health and strength of the mother, I would vigorously advocate the modifying of the generally accepted rules laid down for the treatment of these cases, along the lines of more expectant and less operative procedure.

I have a patient who has had four successive healthy children at term; following these came three abortions. The cause appeared to be bi-lateral laceration of the

cervix, so I performed trachelorrhaphy. Again becoming pregnant, she had the misfortune to fall and break her arm about a week before the date at which she usually aborted, with the result that the fourth mishap promptly appeared. Again she conceived, and carefully avoiding excitement, overwork, and slippery places, carried to term a healthy child. Under ordinary conditions the expectant treatment of abortions does not tend to increase the percentage of septic cases, but this does not apply to those cases where, for one reason or another, abortion has been deliberately sought for; and especially is this so where local interference was the method chosen. Some time ago I was called to see a case of this kind in consultation with a medical man in the Queen's County. Expectant treatment had been adopted by him, and that against the wishes of her relations; but they, of course, had an ulterior motive. However, I found the patient profoundly septic, with acute general peritonitis and almost moribund. She died shortly afterwards. If we find our patient with the signs and symptoms of threatened abortion, with a pulse and temperature, and with foul discharge, it is our duty to empty the uterus without delay, and if we are inclined to waver at all a history of illegitimacy should settle the question, not because we wish to aid and abet in a criminal procedure, but because we may reasonably infer that there has been local interference which has introduced septic material. If seen comparatively early the septic process has not usually penetrated the decidua, and, therefore, removal of the ovum—especially if removed intact—does not prejudice the case. Recently I have done this, when, following the operation, the temperature fell to normal and remained there. Plugging the uterine cavity with antiseptic gauze I consider essential in such cases.

In another class of case which is all too frequent we cannot shut our eyes to the fact that excessive or rough coitus is notoriously the starting point of many abortions; and in these very cases the same unreasonable

partner may be, and often is, the means of introducing sepsis also.

In several instances of repeated abortions from this cause in my practice, a timely word of warning to both parties has saved the situation. On the other hand, I have one case of this nature where the failure to carry out my instructions has brought me into their house no less than four times in one year and two months for the purpose of curettage.

I wonder if any of the Fellows have been called upon to make a diagnosis of pregnancy with a pessary *in situ*? A case treated by a country practitioner with a pessary for retrodeviation of the uterus came to me for my opinion regarding this point. She was warned not to allow any one but her country doctor to remove the pessary. The impression given to the examining hand was that of a two or three months pregnancy, due, I think, to the tenseness of the anterior vaginal wall created by the ring. Fortunately I gave a very guarded opinion, and in two days, desiring a definite answer, she returned to me with permission to remove the instrument, when, lo and behold, as if by magic, the uterus was the normal unimpregnated size. I mention the case to you as a pitfall to be carefully avoided if you have not already made the observation in your own practices.

I said in the introduction to this paper that it was by our mistakes we learn; and that is equally true when applied to the business side of our profession is illustrated by the following anecdote:—

My old friend the late Dr. O'F. required my assistance at a case of miscarriage in one of the poor quarters of the city. He had anxiously waited half-an-hour for me before I arrived home. He then said—"Doctor, I am afraid it is useless your coming now; she must be dead of hæmorrhage by this time." I grasped my bag, saying—"Let us go and see her anyhow." On arrival at a dirty little huckster's shop, in the back parlour lay a woman, her face and pulse, and a glance under the bedclothes

indicating that her life's blood was fast ebbing. The foetus was away, but a five months placenta was retained. The doctor had previously warned me that a guinea only was the fee I might expect; but during the manual removal I heard him call to the anxious husband in the shop—"Make it double what I said."

The case was a successful one, the usual methods stopping the hæmorrhage and restoring the failing pulse. Since then she has had a full-term child. Before leaving, her husband pressed two sovereigns into my hand, and into my ear breathed a shower of blessings. A glance at the money and another at the grimy face and the surroundings prompted me to return half the fee. On the car driving homewards the doctor told me politely what a fool I had been to return the money, seeing that the donor was the proud possessor of five coal drays and a thriving business near by, and was good for a ten guinea fee let alone two guineas. His remark I never shall forget as long as I live:—"Remember, Sheill, take the money while the tear is in the eye." After all, the experience was cheaply purchased at a guinea, as I have since learned.

Hæmorrhage is always rather appalling; but I believe more of it is due to bad management than to causes over which we have no control. Two and a half hours after a perfectly normal labour in a multipara, and in which case no anæsthetic was given, I was urgently called to the house. It was daytime, and the nurse had not lost her previous night's rest; nevertheless she elected to lie down to sleep instead of keeping a watchful eye upon her patient. The lady, feeling faint, fortunately succeeded in waking the nurse. The latter, highly trained and of long experience, recognised the pallor, the sighing, and the faintness, and forthwith plied the patient with whisky, neglecting to turn down the bedclothes to ascertain if all was well there. On my arrival the uterus appeared almost the size of a pregnancy at term, and proved to be full of blood. The patient recovered after an anxious time.

I have no doubt all of you will be glad to hear that there is no record in my case-book, and I trust not elsewhere either, of what I said to the nurse afterwards.

This early puerperal relaxation of the uterus is, in moderate degree, not very uncommon, but, as you know, is most likely to occur after a very tedious labour or following the administration of chloroform. I am convinced, too, that there is a tendency for the scopolamin-morphin treatment to predispose to this unwelcome after-effect. I have remarked it more than a few times, and it is one of the reasons that I have asked myself—"Is the game really worth the candle?"

Let us analyse for a moment this metaphor—what is the "game"? and what the "candle"? Most of us have, I feel sure, entered the profession as a means of livelihood and as an occupation which may bring us renown. In order to attain these ends we strive to gain the goodwill of our patients, and that by doing our best for them in their hour of need. If we are philanthropists our philanthropy must pay us a living profit; but do not imagine I am forgetful of the many opportunities we have, and which most of us grasp, to do a kindness for our patients which will bring us neither fame nor food—that is our privilege.

Now, how does the administration of scopolamin-morphin stand the test? One of its best indications is in elderly primiparæ. It is during the more tedious first stage of primiparæ that it is especially recommended; yet *these* are the very patients who, having had no previous labour pains to compare results, and hence believing as they do that no pain *could* be worse than the ones they are now suffering, never know what pains they have been relieved of as a multipara might. When one weighs against these facts the added risk of hæmorrhage, delirium, and infantile asphyxia, and other symptoms less common, but perhaps more alarming, which represent the metaphorical candle, is it any wonder if we ask ourselves—"Is the game worth the candle?"

There can be no doubt that, although the material to work upon in a given time in a large hospital is far greater, private practice is the best place in which to test the real value of a new method like this, for no operation being necessary the hospital facilities for such carries no weight as an argument, and because patients are in a free hospital is no reason why they should be treated with less consideration or put to greater risks than our private patients, and it would be a thousand pities if we allowed ourselves to lapse into the more callous ways of our foreign *confrères*.

In private practice we must proceed with greater caution, and it is this very caution which acts as a brake upon our enthusiasm, for we know that what is good for our patient is also good for ourselves, and the instinct of self-preservation is no less pronounced in a medical man than it is in any other being.

I venture to predict—or perhaps to put it more correctly—to corroborate the prediction of men of greater experience than I have, that before very long both scopolamin and chloroform will give place to ether in obstetrical practice by reason of its safety, its capability of being administered over a long space of time, and its freedom for ill after-effects.

A subject that to obstetricians is always teeming with interest is the treatment of the lesser degrees of contracted pelvis. About six years ago I published a paper pointing out the great value of induction of labour in such cases, and since then, in spite of the great advances made in surgical methods, I have had no reason to change my mind. Quite a considerable number of these cases have come my way, either in my own circle of patients or seen in consultation with general practitioners, and I was enabled to record an almost unbroken record of success. Later, perhaps, I shall devote special attention to a paper on this subject, but at present it will suffice to touch lightly upon the more important points, and to mention a few illustrative cases. That there is a great

diversity of opinion on this subject few will deny, and this is in part accounted for by slight variations in the classification of the patients as to the extent of the contraction present, and, therefore, of the appropriate treatment. But to my mind it is the medical attendants who require classifying. Please do not jump to the conclusion that I mean the good, middling and bad obstetricians—although truly that is anything but an unimportant factor. I mean the division into the man of the extensive private practice and the man head of a large maternity.

The significance of this distinction lies in the fact that the latter has every facility for operative procedure, however severe. His position gives him greater command over his patients, and for the same reason his errors and miscalculations do him but little, if any, harm; for is he not, rightly or wrongly, looked upon as the last word in obstetrical surgery? But the position of the man in practice is very different. He is obliged to do for his patient, not what is necessarily the best treatment, but what is the best treatment *under the existing circumstances*. Thus, one may see a case treated in her own home by induction of premature labour and later treated in a maternity or private hospital by hebestotomy or by Cæsarean section, and yet both treatments absolutely the fittest under the circumstances. But this *simile* must not be carried too far, for one may see many successful operations carried out in the patients' homes, and one *should* see many patients treated by the less radical measures of labour induction or version in the maternities. The tendency is, I fear, to follow the bad example of our German *confrères* and to be too keen on operative surgery in hospitals. For instance, I know of a case where a patient, the mother of a healthy child some years old, which was brought into the world by induction of premature labour on account of a flat pelvis in the mother, was later delivered of another child by pubiotomy in a maternity. Of course, one could soften

it to their conscience with the plea that there is a tendency in multiparæ to bring forth heavier children as the pregnancies multiply, but if the elasticity of the female pelvis were a fractional part of the elasticity of that conscience there would be few indications for either pubiotomy or Cæsarean section.

A lady came to me from a provincial town something over two years ago, stating that she had lost three infants at birth, and that the local doctor had told her there was no hope of a living child for her short of Cæsarean section. Her pelvis was flat, but accurate measurements encouraged me to advise her to submit to induction of labour in her next pregnancy. She left me, full of hope, and telling me I could count from the very next day. I was somewhat amused at her self-confidence, but she wavered nothing, and, to my astonishment, returned to me less than two months later, well over six weeks advanced in pregnancy. I watched her carefully, and from time to time fitted the head of the child to the pelvic brim. I allowed her to go to within five weeks of term, then induced labour, performed external version, and managed to get the after-coming head through the pelvic brim safely and in good time. The child is still healthy and doing well, and was easily reared so far. It may be suggested that the foetal head is as large, or nearly so, at five weeks from term as it is at full term. That may be so, but the softness of less advanced ossification, and the version bringing the thin end of the cephalic wedge foremost was the saving clause.

Another patient, having lost two children—the last one under my own care at the labour—was very desirous of a living child. Her pelvis was funnel-shaped and very narrow in the transverse of the outlet. Induction of labour in the thirty-fourth week of gestation procured her a fine strong boy without having recourse to version, which in such a case would, to my mind, be contra-indicated. The child has since done well. Perhaps I have said enough to justify my previous remarks as to

the treatment of contracted pelvis in minor degrees, for it must be remembered that these two patients, in common with a number of others, would never have submitted to any operative procedure whatsoever, such as Cæsarean section or pubiotomy either in hospital or at home.

Yet in this connection I was astonished to read recently a quotation by an American author from a paper by Dr. Tweedy, the late Master of the Rotunda, stating that "the induction of premature labour is never justifiable," and "that version should never be employed in contracted pelvis cases except as treatment of funis prolapse." I trust that either the quotation is inaccurate or that Dr. Tweedy omitted to state that his opinion only applied to the work in a large maternity; and even in the latter case I beg to take exception to the opinion. I believe that the late Master of the Rotunda has had some very successful cases of Cæsarean section and pubiotomy; but that fact does not weaken my contention that there can be no hard and fast rule laid down, and that if each individual case of contracted pelvis be judged on its own merits, giving full consideration to the wishes of the patient and her husband, and to the surroundings and circumstances in general, there will be as heretofore many valuable lives saved by the very safe and successful, yet less heroic, methods of delivery.

Now, to change the subject, I fear we are as far as ever from being able to accurately prophesy the date of labour in any given case. We may as well candidly admit that the date of quickening, the height of the fundus, the so-called "falling of the womb," the alleged fixation of the presenting part, and other signs and symptoms, are only relatively accurate, and that, speaking generally, they are not likely, *per se*, to bring us within one to three weeks of the correct date except by mere chance. Short of examination *per vaginam* very early in the period of gestation we have, after all, nothing to count by except the date of menstruation, and in cases of irregularity of that function, or of cessation

due to lactation, &c., we are hopelessly at sea. This fact is much to be deplored, for a wrong calculation often seriously upsets the household arrangements—a mother-in-law may wish to come from England in good time to torment the unfortunate obstetrician, or a nurse may eat the bread of idleness and draw the unearned salary, and at the same time bore to death the patient and her husband. Having told you all this, no doubt you are anxiously waiting for me to expound a new theory whereby we can foretell the day and hour; but you are doomed to disappointment. Even the menstrual history is, as you are aware, only approximately accurate in most cases, and, as the following case illustrates, is very inaccurate at times. The wife of a medical man bespoke my services, and being so certain of her dates, &c., would not allow me to make any calculation or examination whatsoever. I was to be called on the 11th of one December, but the date, December 31st, engraved upon a handsome little gift bears testimony of her gross miscalculation. And it need not be said that in these instances the child has been carried beyond term. Close scrutiny of many such cases makes me think that, although this excuse or reason may be, and often is, advanced by the medical attendant, it is at any rate very much the exception. The difficulty of the situation seems to be the impossibility of knowing how long a period of time elapses before the meeting of the sexual elements, and then how long it may take before the impregnated ovum imbeds itself upon the uterine wall—or shall we say that in these overdue cases the rupture of the graafian follicle took place in the middle of the intermenstrual, or shortly before the next expected period, and so prevented its coming?

I mentioned vaginal examination in early pregnancy. By that means we can tell accurately to a few days at most if we see the patient between the sixth and ninth week of pregnancy, and although the accuracy of this method of calculating depends entirely upon the dexterity

of the observer, it appeals to me as the only really valuable means at our disposal. Moreover, there is much to be said in favour of this examination, if it were for no other purpose than to ensure bringing patients under the care of their chosen medical adviser much earlier than might otherwise be the case. From the selfish point of view it may ensure that the patient will not be influenced later to put her health in the care of another doctor; but, more important still, it gives us the means, if we are only industrious enough or sufficiently solicitous of our patients' welfare, to grasp the opportunity of reducing the number of cases of the intoxications of pregnancy by stepping in where nature fails, and preventing rather than curing many of these dire complications. Primiparæ, perhaps, are the ones least disposed to engage their medical man early in the pregnancy, usually from foolish feelings of modesty, and they are the very type of patient in whom the intoxications most frequently make their appearance. A pregnant woman should be under medical supervision from the earliest possible moment; then there would be less trouble with nausea and vomiting, and less fear of it progressing to the severer hyperemesis. The same applies to the train of early signs and symptoms which so frequently lead up to eclampsia—that most dread of all diseases of the pregnant woman, and the one of which we probably know least. In order to make up in some degree for our deficiencies in the curative treatment of eclampsia we should be all the more careful to insert the proverbial “stitch in time” by *looking for*, instead of waiting until, threatening symptoms make themselves apparent. In this connection I would urge that it is our duty as obstetricians not to be content with the mere search for traces of albumen in the urine, but, upon the least indication of kidney or eliminatory or metabolic deficiency, to estimate carefully the total amount of urea excreted *via* the urine in the twenty-four hours, which is so valuable a guide. I am not aware whether this test is utilised in our maternities or not,

but in any event its uses would of necessity be limited practically to waiting patients and to visiting patients; for those coming to the hospital for labour only would be beyond the stage for prophylactic treatment. In our private practices, however, there is full scope for utilising this test; hence if it is not *used* in the maternities it should certainly be *taught* there. Quite recently I was brought face to face with an aggravated case of hyperemesis. She was at term when I first saw her, and in an appalling state of emaciation. There was no marked abnormality of the urine, but her liver was large and tender. There was no jaundice. The labour over, she did well, but we were obliged to aid by the use of forceps. Twelve hours later she retained food in the stomach—a thing she had not done, I was informed, for over five weeks previously. That there may be excessive vomiting of pregnancy other than that due to intoxications, there can be no doubt. I was consulted by a lady, the mother of five children, and she informed me that at each pregnancy she had vomited daily—sometimes several times daily—practically from start to finish. Her doctors were unable to relieve her, and she was facing this sixth pregnancy in a suicidal frame of mind. The case was largely—if not wholly—neurotic in origin. A complete cure was the result of the usual treatment plus the “suprarenal therapy.” I infer from this that the adrenalin was the curative agent, inasmuch as her previous treatment had been, according to her own statement, along much the same lines as mine, excepting only the adrenalin. This is a treatment which I think will repay us all for further investigation. Another vomiting case of mine in three successive pregnancies has had general pruritus associated with the vomiting. There were no demonstrable signs of intoxication, and the remedying of the emesis also removed the pruritus. It may have been of nervous origin, but I am inclined to think it was an undiscovered early derangement of eliminatory functions.

Before finishing this rigmarole of a paper I would like to mention a few other cases of a varied nature. They may carry no moral, but perhaps they will be of some interest. I do not expect many of us have had the unpleasant task of delivering two breech cases with their overcoats on, but this has fallen to my lot. If ever a speedy vehicle may be credited with saving lives, the motor car may in these two instances—one, a case of twins, the first child born as a vertex, the second a breech born as far as the shoulders, the occiput anterior and the nurse pulling *towards* the floor without avail, while the lady friend stood on the doorstep wildly gesticulating as I approached. The other case, a single pregnancy, and a night call. The anxious husband met me at the avenue gate. In the bedroom the patient in the dorsal position, the baby born to the neck, while the nurse knelt and devoutly prayed and watched only. A short, sharp struggle brought home an asphyxiated infant which was successfully brought to. Neither patient showed any sign of infection, I am glad to say.

Speaking of twins, we all know the difficulty that exists in diagnosticating them. A lady not over five months pregnant submitted to abdominal palpation. I could not be quite sure, but told her there was a suspicion of twins. She informed her husband, and I am told he straight-away insured for a considerable sum against the contingency. Twins arrived in due course and lived, the husband drawing some £30 insurance money, while I found myself in the pleasant position of having unconsciously aided and abetted in obtaining money under false pretences.

Precipitate labour often ends disastrously. I once came hurriedly into a bedroom and beheld a patient half standing, half squatting, with the baby on the floor being picked up by the nurse. A badly torn perineum was the worst feature of this case. Much more unpleasant was the following :—At 4 30 o'clock a.m. vaginal examination revealed a hard os, not very thin, and about the size

of a shilling; average pains were present. I returned home, having stated that I probably would not be required by this primipara for some hours to come. Half an hour later, in answer to an urgent call, I found the baby born, a ghastly laceration of the perinæum and vagina, and a bi-lateral laceration of the cervix uteri. The nurse stated that soon after my departure pains of extraordinary length and severity set in with great rapidity, and her best strength was futile in holding back the infant. I hope it will be long ere I see another such case. If one could recognise these abnormally strong pains in time morphin or chloroform might save the situation.

A somewhat unusual remote consequence of sapræmia was brought to my notice a little while back. The lady had been attended in her confinement by a general practitioner. The sutured perinæum went hopelessly septic, complete non-union resulting. The toxins circulating in her system made the internal ear their principal point of attack, inflammation of the labyrinth resulting, with dizziness and other subjective symptoms. I sent her to a specialist on ear diseases, but although she is considerably improved under the treatment, the prognosis is not altogether bright. Cases of this nature now and then cropping up should make all obstetricians look with horror at even the smallest of puerperal ulcers.

A peculiarly alarming symptom complicating pregnancy came under my care some five or six years ago. When I first saw the case she was about six weeks pregnant and complaining of dimness of vision in both eyes. There was no specific history, nor had she ever suffered from any previous eye trouble. There was no albumen in the urine, nor any symptom pointing to involvement of the kidneys, although it is true her right kidney was freely movable. I put her in the hands of a competent ophthalmologist, who found all the appearances of albuminuric retinitis. A month later she became quite blind in the right eye and half blind in the left one. The

case turned out to be one of placenta prævia and ended successfully. A month after the confinement the eyesight in both eyes was restored to its normal acuteness. Throughout the pregnancy there was at no time any albumen in the urine. Two oculists and myself still remain in the dark as to the cause of the trouble.

One does not hear much about nymphomania in women, but my experience would tend to argue that masturbation is not very uncommon, for during the past two years four cases have come to me which may be worthy of mention. One woman was mother of two children, and was such a bad case as to lead me to suspect that her brain was really affected by the vice. One of the others had so infected herself that she had contracted an abscess of Bartholini's gland, which had to be operated upon. At the time the cause of the abscess was unknown, but she afterwards admitted her failing. The hymen was intact in all the cases except the first one. The other two cases were brought to me with no complaint except losing flesh and strength and with leucorrhœa. The diagnosis is not so easily made as one might expect, for we are obliged to speak very cautiously, lest, being on the wrong track, we might give offence. The symptoms are not at all unlike what one might expect in cases of tuberculosis of the appendages, and although there are differences, yet three cases of the latter disease at present under my care show considerable similarity to the last two cases of the other kind. Acute scrutiny of the patient during the consultation, and a general character reading from close observation of human nature are of far greater value in making a diagnosis than are the symptoms or the statement of the patient's mother, who, as a rule, is absolutely unsuspecting.

Having now, I fear, exhausted the patience of the Section, I will conclude after mentioning one more subject. Some of you will doubtless remember my advocating here some years ago the systematic bi-manual

examination of all puerperal cases—but more especially primiparæ—in the fourth or fifth week *post-partum*. The reason for this being the tendency of such a large percentage of uteri to become displaced backwards at about this time. I have found 20 per cent. displaced, and nearly another 40 per cent. balanced so that a small thrust, such as might be caused by a full bladder, might readily turn the balance in favour of the backward position. Manual replacement at this time allows involution to proceed in the normal fashion, and saves the patient from much future trouble in the large majority of cases. I do not claim originality for this; I borrowed the idea from some of the heads of the obstetrical profession across the “herring-pond,” and I am not ashamed to confess it. I am not aware if many of the Dublin school practise this preventive method, or whether they prefer the more lucrative course of allowing their obstetrical patients to drift into the ranks of gynæcological ones. If the latter, I would sound a word of warning lest they should not be aware of the possibility—if not probability—of their midwifery failures finding their way into the gynæcological chair of *other* specialists. Thus the neglectful course might prove neither lucrative nor creditable. One I know besides myself who practises it successfully, and I tender to him my hearty congratulations. Perhaps there are also many I know not of. I hope so, as the practice is undoubtedly to be considered as an advance in obstetrical procedure.

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ART. XVII.—*The Ætiology and Treatment of Diabetes Mellitus.*<sup>a</sup> By W. M. CROFTON, M.B.; Lecturer in Special Pathology, University College, Dublin; Pathologist to Dr. Steeven's Hospital.

SINCE there is at present no unanimity of opinion as to the ætiology of diabetes mellitus—the disease character-

<sup>a</sup> Read before the Section of Medicine in the Royal Academy of Medicine in Ireland, on Friday, March 10, 1911. [For a discussion on this paper see p. 466.]

ised by the appearance of dextrose in the urine over weeks, months, or years, accompanied by increase in the amount of urine, increased thirst, abnormal appetite, and, as a rule, by wasting and exhaustion—I propose first to discuss the ætiology of the disease and then the treatment employed which follows logically from the ætiological conclusions arrived at.

Glycosuria is an essential feature of the disease, but there can be no doubt that, besides carbohydrate, protein and fat metabolism are also frequently deranged, and in the worst cases derangement of the metabolism of all three classes of metabolites is present.

The sugar found in the blood and tissue juices is dextrose, in which form it is absorbed from the intestine. It occurs in any quantity up to 0.2 per cent. If it rises above this it is excreted by the kidneys, and glycosuria results. When during digestion a large amount of dextrose is being absorbed from the intestines the amount in the arterial blood does not normally rise above .2 per cent., because the liver and tissue cells (*e.g.*, the muscle cells) take up the surplus and store it in the form of glycogen, which is reconverted into dextrose to keep up the normal percentage of dextrose in the blood during fasting. Cohnheim and others have demonstrated experimentally that the oxidation of the dextrose molecule by the tissue cells depends on the interaction of two substances forming a compound ferment, one part produced by the tissue cells is heat-labile being of the nature of complement, the other part is heat-stable is of the nature of immune-body, and is produced by the pancreas. The absence of either element of the compound ferment would prevent the oxidation of the dextrose, and so lead to the excretion of the unmetabolised sugar.

Fat is also metabolised in a similar way by the tissue cells by the interaction of the heat-labile and heat-stable elements of a compound ferment, the complement-like part being produced by the tissue cells, the immune-body-like part by the pancreas. These facts have been recently

demonstrated by Shaw-Mackenzie and Rosenheim, who call the heat-stable part "co-ferment."

Practically nothing definite is known as to the form in which protein food substances are passed into the blood from the alimentary canal. We know that the intestinal cells take them up as amino-acids, but whether they build them up into large protein molecules such as serum-globulin and serum-albumin, and secrete these into the blood, and the tissue cells break these large molecules down again into amino-acids, before using them as food, or whether the amino-acids are passed into the blood stream as such and the tissue cells absorb them direct, is not known. We do know from the facts of hæmolysis and bacteriolysis that the tissues can break down a large protein molecule. As is well known, hæmolysis and bacteriolysis are brought about by the interaction of two substances, one heat-labile, complement, the other heat-stable, immune-body or co-ferment: so that the breakdown of the large protein molecules of which the stroma of red corpuscles and the body of microbes is composed is similar to the process by which the molecule of fat and carbohydrate is broken down, and the pancreas alone has been shown to produce the immune body or co-ferment part of these compound ferments. It seems to me, therefore, quite likely that the pancreas produces the immune body for protein metabolism, and is at any rate the chief source of these essential factors in anti-bacterial immunity.

Certain clinical observations point in this direction. (1) It is well known that diabetics have a much lowered resistance to microbial invasion, which may be due to the patient's pancreas having a reduced capacity for turning out immune bodies.

And (2) in a diabetic the "negative phase" after an injection of vaccine is almost invariably accompanied by an increase of the amount of urine and sugar excreted. I think it is quite possible to explain this by supposing that the cells that produce the carbohydrate co-ferment also produce the protein co-ferment, and that

the lowering of their vitality by the injection of a foreign protein which they are not able to digest, and which, therefore, interferes with their metabolism, causes a reduction of the output of carbohydrate co-ferment, which, of course, leads to a reduction of the amount of dextrose metabolised, and, therefore, to increased glycosuria.

The pancreas is stimulated to secrete both its intestinal and tissue ferments by means of a hormone, "secretin," formed in the mucous membrane of the upper part of the intestine from a precursor prosecretin under the influence of the acid gastric content when it passes into the intestine from the stomach.

From the above considerations of tissue metabolism it is easy to understand the profound derangement of it that must take place when the co-ferments are suddenly and completely withdrawn, as they are when the pancreas is entirely removed under experimental conditions in dogs. The animal soon develops a complete picture of an acute severe case of diabetes mellitus; sugar appears in the urine within twenty-four hours, the animal becomes abnormally hungry and thirsty; there is increase in the amount of urine; later  $\beta$ -oxybutyric acid, &c., appears in the urine, and there is a large increase in the ammonium-urea ratio.

Glycosuria has also been produced experimentally by puncturing the floor of the fourth ventricle between the nuclei of the eighth and tenth nerves. This glycosuria lasts only as long as there is glycogen in the liver, and does not occur if the vagi have been previously cut.

Phloridzin and phloretin cause glycosuria. They act on the kidney cells, most probably stimulating their dextrose excreting powers. Another view is that they dissociate the dextrose from a normal combination with a protein, and that then the kidneys excrete the uncombined sugar. At any rate they produce a hypoglycæmia, and the glycogen from the liver, muscles, &c., is converted into dextrose to keep up the normal percentage in the blood. When the glycogen is exhausted sugar continues to be excreted,

being formed from the proteins of the body as it frequently is in diabetes.

Another drug that produces glycosuria is adrenin, both when injected into circulation and when painted over the pancreas. It thus seems to act directly on the co-ferment forming cells of the pancreas. It is important to note that oral administration is less likely to produce glycosuria.

Glycosuria sometimes appears after ether narcosis, and it is interesting to note that ether precipitates the carbohydrate co-ferment from its solutions. Many other drugs produce glycosuria, but I need not mention them here.

Lastly, dextrose may appear in the urine as a result of too large an ingestion of carbohydrate; the amount that can be given to a healthy animal without the appearance of glycosuria varies somewhat with the individual, and no doubt varies in the individual at different times.

This so-called alimentary glycosuria is probably due to the liver being able to store only a certain quantity of glycogen at a certain rate, a sudden flooding of it with an excess of dextrose leads to a greater amount than normal passing into the circulation, and so to glycosuria.

Turning now to the clinical aspect, it thus appears that glucose may appear in the patient's urine as a consequence of—

(1) An overdose of carbohydrate. The upper limit of the amount that can be given without sugar appearing lies between 150 and 200 grammes. If a dose under 150 grammes produces glycosuria something is wrong. It is subnormal in certain diseases of the liver, such as cirrhosis.

(2) A condition corresponding to puncture-diabetes has been associated with brain lesions, such as tumours and hydatid disease in the neighbourhood of the medulla.

The transitory glycosuria in individuals who are suffering from neurasthenia from overwork may be due to a nervous cause.

(3) That glycosuria may be caused by adrenin is of interest, because Rogers suggests that the diabetes, which

sometimes occurs as a terminal event in exophthalmic goitre, when the thyroid becomes sclerotic and the patient myxœdematous, may be due to the unbalanced action of the adrenals. It is interesting in this connection to note that manipulation of the adrenals has produced glycosuria.

It is possible that in the later stages of diabetes the kidneys, owing to fatty degeneration, &c., may have a reduced power of keeping back sugar just as they have in phloridzin glycosuria.

(4) Failure of the tissue cells to produce the heat-labile part of the co-ferment. There is no experimental evidence that this occurs, but there is some evidence that it does not, for Baumgarten has shown that certain partly oxidised carbohydrates can be completely oxidised in the tissues of pancreatectomised dogs. Such a carbohydrate is d. glycuronic acid, which represents the first stage in the oxidation of dextrose. The difficulty that the tissues of diabetics seem to have, therefore, is the breaking of the long hexose chain. Another point against the glycosuria in pancreatectomised dogs being due to absence of complement is that it is only the source of co-ferment that has been removed, and that, therefore, in experimental diabetes the complement is intact, at any rate in the early stages of the condition. Very possibly in the later stages, owing to malnutrition of the cells, the complement may be diminished. It ought not to be difficult to devise experiments to determine this point.

(5) Lastly, the glycosuria may be due to functional or organic disease of the pancreas with its consequent diminution or absence of the co-ferment.

Taking the organic diseases first—

Pancreatic lesions have been frequently found in diabetes. They are various, such as interstitial fibrosis—that is, the fibrosis is intralobular and interacinar; various degenerations of the islands of Langerhans, such as round-celled infiltration, sclerosis, hyaline degeneration, &c. I do not propose to go into the vexed question as to

what relation the islands of Langerhans bear to the rest of the secreting epithelium, or whether they alone furnish the co-ferment. I will mention only the following facts :—

In 90 cases of diabetes Cecil, of the Presbyterian Hospital, New York, found sclerosis or degeneration of the “islands,” plus interstitial fibrosis, in 67. In these arterial sclerosis was common. The parenchyma normal, and lesions of the “islands” alone in 12, while the pancreas was normal in 11. Of these 11, five had marked diminution in number of the islands, while in two others the pancreas was abnormally small.

Others have found interstitial fibrosis in 50 per cent. of cases.

Cecil found also that in some diabetic pancreases, while the islands were for the most part degenerate, some had undergone enormous adenomatous hypertrophy. He suggests that this was compensatory.

Now, what is the origin of the interstitial inflammation that occurs in the pancreas? It is probably two-fold; firstly, it may spread up from the ducts, and secondly, it may begin in the connective tissue of the gland. In the first class the inflammation may be due to obstruction by a gall-stone or by calculi in the duct of Wirsung, or to infection with micro-organisms from the intestine or bile ducts. The diabetes in these cases is a terminal event in chronic pancreatitis.

When the inflammation is intralobular it is very probably due to infection through the blood stream.

When the islands alone are diseased it may be due to a microbial infection by way of the blood-stream; to toxæmia, just as the kidneys undergo amyloid degeneration in chronic suppuration (the removal of a gangrenous limb has been known to diminish the amount of sugar excreted), or the islands may undergo disuse-atrophy owing to the absence of sufficient stimulus.

This brings me to the consideration of those cases in which no lesion of the pancreas has been found.

In Cecil's series they are in the minority, in others they are in the majority, while in others again the numbers are about equal. I do not think it is difficult to account for these cases, for in an absence or diminution of secretin the pancreas would be without its normal stimulant, co-ferment would not be produced, and glycosuria would result. It may be asked is the secretion of co-ferment dependent, like the external ferments of the pancreas, on a hormone from the intestine: the successful treatment of some cases of diabetes with secretin would strongly tend to prove that it is, for in no other way than the stimulation causing the pancreatic cells to produce a larger amount of co-ferment could this substance produce improvement.

Further, in some cases of diabetes dead from coma prosecretin was found absent, while in other cases dead from other causes it was present. Long-continued absence of secretin may account for the small size of the pancreas, which is otherwise normal—in some cases of diabetes the small size being due to atrophy of the cells of the parenchyma and a diminution of the cell-islets in size and number owing to disuse.

Hypoplasia of the pancreas has also been said to be congenital in some cases, and may be a reason why children of diabetics sometimes develop the disease.

I am not aware that any observations have been made on the intestinal mucous membrane in diabetes: I know enteritis was present in one case that I examined in which there was no marked lesion of the pancreas except that it was smaller, darker, and firmer than normal, and there was some interlobular fibrosis. This patient had fatty stools with no obstruction of the duct of Wirsung *post-mortem*. Stomatitis and gastritis are common in the disease, and so enteritis may be also, but, of course, the inflammation may be secondary not primary.

It has long been suspected by some that many cases of the disease were due to infection by micro-organisms, the occurrence of the disease in husband and wife, or in

several members of the same family, lending support to this view. It seems to be more common in some places than others; for instance, it was quite common in Sutton Bridge, where I practised, while my medical neighbours saw comparatively few cases. The drinking water in Sutton Bridge was particularly liable to sewage contamination.

Wright mentions a case of diabetes whose symptoms varied with the opsonic index to a coliform organism isolated from the patient's stools. As already mentioned, I always find that the negative phase after an inoculation is reflected in the urine. McWaters has observed great improvement in several cases suffering from furunculosis which he treated with vaccines made with staphylococci isolated from the boils.

Three of my cases were peculiarly liable to sore throat, and always had increased excretion of urine and sugar during the attacks.

I always look for a source of infection, and find one of the commonest is severe pyorrhœa alveolaris. This disease offers easy opportunities for blood infection, and the constant swallowing of virulent organisms is undoubtedly a common cause of gastritis and enteritis.

I think some of these facts are very suggestive that the enteritis and pancreatitis are due to micro-organisms—in some cases at any rate.

There is one other possible cause of the non-production of secretin, and that is that there may not be sufficient acid in the gastric content when it passes into the duodenum to convert the prosecretin into secretin.

Diagnosis of the exact cause of glycosuria in a given case must always present difficulties.

If it is due to an overdose of carbohydrates it will be only transitory, and the diagnosis can be confirmed by giving the patient 150 grammes of dextrose. If no sugar appears in his urine his glycolytic apparatus is probably normal.

The form which is hypothetically due to a temporary diminution of the glycogenic functions of the liver would

also be only temporary, and would disappear with a reduction in the amount of carbohydrate ingested. I do not see, however, how it is possible at present to distinguish such a form from one due to a diminution in the co-ferment production by the pancreas, the condition of the patient corresponding to that of a partially pancreatectomised dog. I think there is some statistical evidence that some of these cases develop typical diabetes later on. These cases ought to have their urine tested at fixed intervals.

Cases of glycosuria associated with brain lesions ought to present little difficulty owing to collateral symptoms.

While the small number which may be due to neurasthenia present a picture like the glycogenic ones—viz., a temporary diminution of carbohydrates producing a restoration of glycolytic functions.

There remain the patients in whom a strict non-carbohydrate diet produces a freedom from glycosuria, but in which any attempt to give them sugar again produces the glycosuria, and those who excrete sugar on the strictest diet.

These cases I believe are always due to functional or organic disease of the pancreas, or perhaps to both—that is, there is diminution of the production of secretin and a lesion of the pancreas as well.

A symptom that is sometimes present, and which suggests a lesion of the pancreas, is pain and tenderness on pressure over the region of the gland.

Fatty stools suggest obstruction of the duct of Wirsung, and so are of localising significance.

Canmidge's reaction may also help in the diagnosis.

The improvement of the patient under secretin may suggest that the lesion is chiefly intestinal.

While if the lesion is solely pancreatic the patient does not improve under secretin, but does under the co-ferment extract.

Diagnosis will be difficult until we can test accurately the amount of co-ferments circulating in the blood.

*Treatment.*—I need not refer further to the treatment

of those cases of glycosuria which clear up with a temporary restriction of carbohydrates, or of those connected with a gross nervous lesion. While the treatment of those cases occurring as a terminal event in exophthalmic goitre would be the same as that of a typical case of diabetes plus the exhibition of thyroid-globulin.

The above-mentioned considerations of ætiology give two lines of treatment which are complementary to each other—the first specific, the second symptomatic.

By specific I mean the removal of the cause of the inflammation, which may be present in the intestine or pancreas.

In every case an exhaustive examination for a source of infection should be made. As before mentioned, pyorrhœa is very commonly present, and should be cleared up with a vaccine. If furunculosis is present it should be cleared up in a similar way, also carbuncle. I have seen most marked improvement in a case with severe pruritus vulvæ after inoculations with a staphylococcus vaccine, the organism being isolated from the lesion. So, too, any chronic tonsillitis or nasopharyngeal catarrh should be cleared up. I believe the swallowing of mucopurulent matter from the nasopharynx is a common cause for chronic gastro-enteritis. Lastly, if no other source of infection can be found, a bacteriological examination of the fæces ought to be made, and the patient's opsonic index tested against the organisms isolated, and if this indicates the infectivity of any of them a vaccine should be prepared.

Several observers have obtained good results with this line of treatment, and I have also obtained improvement in several cases. At any rate, nothing but good can result to the patient from ridding him of micro-organisms which are infecting him, although they may not be the source of the specific disease from which he is suffering. I have found it very difficult to clear up pyorrhœa in a case with well-marked acidosis, owing probably to the fact that antibodies do not act well in an acid medium.

There is another class of diabetics which also require

removal of the cause, and they are those with fatty stools. The majority of these cases have, I think, obstruction of the pancreatic duct either by a gall-stone in the ampulla of, or pancreatic calculi in, the duct itself. Cammidge and Robson have published cases in which the former had made the diagnosis of obstruction by means of his reaction and a careful examination of the stools, and in which the glycosuria disappeared after suitable operative interference. I believe there are certain cases with fatty stools which have no obstruction of the duct, the fatty stools being due to complete absence of secretin or to its diminution to such an extent that very little of the pancreatic external ferments are formed. I think such cases are exceptional, however.

Turning now to the other line of treatment. It is an attempt to replace the absent or supplement the diminished co-ferments.

I begin by giving the patient secretin.

Clinical evidence and experimental evidence seem to be at variance as to the efficacy of giving this substance by the mouth. Starling positively declares that this substance is not absorbed when given in this way. A few cases of complete disappearance of sugar and of complete recovery from diabetes have been recorded which could be accounted for in no other way than that they were due to the exhibition of secretin. I myself have had no case of this kind, but I have undoubtedly seen improvement occur, and many observers have had cases in which they have seen improvement with secretin.

If the patient does not improve markedly with the secretin I give a pancreatic extract.

The first extract I used was an extract containing all the pancreatic products. With this I obtained a very marked improvement. The patient was a child of twelve, in a very bad condition when I saw her first—emaciated and cyanosed, and passing at least fifteen pints of urine in the twenty-four hours, containing about 10 per cent. of sugar. At the end of a year she was passing two

and a half to three pints of urine, containing 3.5 per cent. of sugar. After treatment commenced she soon lost her thirst and abnormal hunger, and began to feel well, and played about like an ordinary child. She had several relapses during the year with some return of symptoms, and these were always preceded by a sore throat, and accompanied by pain and tenderness over the pancreatic region. After the year, treatment was stopped owing to expense, and much against my will. She remained in the condition stated with no symptoms of the disease except the sugar in her urine. She then suddenly relapsed, and died without treatment, in spite of my emphasising to her parents the probability of relapse. From start to finish no alteration was made in her diet.

Being convinced that such marked improvement in such a severe case in a child must be due to the treatment adopted, I was anxious to find out what substance in the whole extract produced the improvement. I, therefore, had a pancreatic extract made, from which all the coagulable proteins and external ferments were removed, and this extract is the one I now use.

It is made up as follows:—The proteins are precipitated from the press-juice of pigs' pancreas by keeping it at 80° C. for three hours. The coagulated proteins are filtered off, and the filtrate is mixed with 20 per cent. of glycerine. The extract, which is made by Messrs. Fairchild Brothers and Foster, to whom I am much indebted, is to be obtained commercially under the name of *hormonadin*.

The dose for an adult is 5i, and the number of doses in the twenty-four hours must be worked out for each case, for I find that there is an optimum dose just as Cohnheim found that there was an optimum amount of pancreatic extract in his experiments—too much of this producing diminished glycolysis as well as too little.

Now, as to the results obtained. I have not yet had a sufficient number of cases to enable me to dogmatise, but I have seen a sufficient number, which were going to the

bad on the ordinary lines of treatment, improve and resume their ordinary mode of life, and this on an ordinary full diet, to encourage me in the idea that I am working on the right lines.

The patients soon begin to lose their abnormal thirst and hunger, and the wretched feeling of weakness and illness. In some cases the amount of sugar and of urine decrease rapidly, but I have never succeeded yet in entirely getting rid of the sugar, although the patient has declared himself feeling well and strong and able for his full quantum of arduous work. I do not know if the extract would cause the sugar to disappear in a mild case, because, so far, I have not had such a case to treat.

I believe in one case, not treated by myself, diacetic acid has disappeared under the treatment.

The cases that have done least well in my hands have been cases with a large amount of acidosis, which could not be materially reduced by alkaline citrates and carbonates given in large doses. The extract seems to improve these cases to a certain extent ; at any rate they seem to maintain their weight and not be so liable to coma. In fact I have had one case recover from coma by giving the extract intramuscularly, and giving large quantities of water and citrates by the mouth, and another case which, owing to inadvertence, had not been having the extract and began to develop the symptoms of the onset of coma, rapidly lost them under similar treatment.

I believe the treatment can be improved, for the giving of a dose of co-ferment three or four times a day is a poor substitute for the continuous secretion of the normal ferment. I, therefore, think the oftener a small quantity of the co-ferment is given the better the results ought to be. The makers, at my request, are, therefore, trying to obtain the substance in a dry form, so that the patient can carry it about in his pocket in the form of a tablet or pill, and take one every half hour or so.

I find that many patients do best if they take both secretin and co-ferment, and so I am having a tablet con-

taining both made. In cases with fatty stools the whole extract should be used.

In conclusion, I do not think it possible in the majority of cases to cure diabetes, because when the patient comes under treatment the cells producing the essential substances are so far damaged that they cannot be restored, but I do think it possible to prevent, at any rate in many cases, the disease getting worse, and by means of giving the affected substance to enable the patient to live an ordinary life on an ordinary diet.

It seems the cases which can recover completely are those acute cases in young people whose glycolytic mechanism can be restored if tided over the acute phase, just as acute nephritis can be completely recovered from.

ART. XVIII.—*The Modus Operandi of Vaccine Treatment.* By  
G. ARBOUR STEPHENS, M.D. (Swansea).

THE benefits of the vaccine method of treatment are supposed to be due to the production of some form of active immunity against the corresponding living organism. By this one understands that the life of these organisms is brought to an end through the agency of dead ones of the same species—that is, the products of dead micro-organisms added to the “soil,” or the human body, hasten the death of the corresponding living organisms. Do the dead kill the living organisms?

The following experiments were undertaken with the object of finding out how the death of the organisms is brought about:—

A small quantity of German yeast was shaken up with water and divided into two parts, *A.* and *B.* *B.* was boiled. A solution of cane sugar was made and sterilised. Into each of six large test tubes were placed 10 cc. of the sugar solution. To each of these also were added 3 cc. of solution *A.* To 1, 2 and 3 tubes 3 cc. of solution *B.* were added, and to 4, 5 and 6, 3 cc. of boiled water were added, so as to have the quantity of liquid in all the tubes of equal amount. The six

tubes were kept at a temperature of 37° C. for thirty-six hours. On examination at the end of this period one found macroscopically that there was greater turbidity and more froth on the mixtures in tubes 1, 2, and 3 than in 4, 5 and 6.

Microscopically one found that the yeast cells in 1, 2, and 3 were budding much more extensively than those in tubes 4, 5 and 6, from which one could conclude that growth was more active in those tubes to which the solution of boiled yeast had been added.

At the end of five days the macroscopic appearances were altered, and growth seemed more active in tubes 4, 5, and 6, especially as regards the froth. In tubes 1, 2, and 3 things seemed flat.

On microscopic examination budding seemed nearly as marked in tubes 4, 5 and 6 as in the others, though in 1, 2 and 3 there seemed to be more cell *débris*. The boiled yeast seemed to have stimulated the cells in tubes 1, 2 and 3 to an early and strong activity, and a correspondingly early termination of that activity. In other words, the point of equilibrium in regard to inversion was arrived at earlier. To put it paradoxically, one might say, with regard to yeast, that that which hastens its life is its death, and that which hastens its death is its life. Cessation of growth is due partly to the reaction of the catalytic products and partly to the combination of the enzymes with those products in the substrate. The stimulus to growth by the addition of boiled yeast results in a more rapid production of catalytic products and of enzymes. The quantitative effects of catalysis are equal whether the reaction is quick or slow, so that a rapid reaction means a hastening of the formation of catalytic products as well as of enzymes, and, consequently, a hastening of the combination of the enzymes with the products in the substrate.

The more rapid formation of the products of catalysis or hydrolysis is conducive to a high concentration of those products, which concentration is the condition most suitable for the synthesis or *reverse fermentation*.

It is difficult to estimate the full value of reverse fermenta-

tion, but this is certain, that the sooner it sets in the sooner the growth of the catalyst ceases. Anything that hastens reverse fermentation hastens a cessation of the original reaction, and I think one might be able to state that whatever causes a cessation of growth gives rise to reverse fermentation. At any rate, boiled yeast is able to hurry on the stage of reverse fermentation.

It is generally understood that synthesis is but a stage of and follows hydrolysis, for no catalyst is known that has only a synthetic tendency.

The question naturally arises—Is the cessation or cure of a disease synonymous with the effects of reverse fermentation of the organism of that disease?

In pneumonia one often finds that a very active attack is over more quickly, and with fewer bad effects, than an attack that seems less active and decided in its action.

In the active form, does reverse fermentation set in more rapidly on account of a greater concentration of catalytic products, whereas does the delayed setting in of the synthetic process allow of the general vitality being overdrawn to the prejudice of recovery?

As bearing on this point I might mention several cases of suppurative tonsillitis which, up to the moment of injection of a staphylococcic vaccine, were very sluggish, but immediately afterwards took on a greater activity and broke. Similarly with "blind" boils, one finds an increased activity as shown by a rapid pointing and bursting.

Several potato surfaces were stroked with some *Staphylococcus aureus*, and, in addition, half the number were stroked with water in which some *Staphylococcus aureus* had been boiled. The growth was more rapid and abundant on those that had the additional stroking with the boiled cocci.

Two Petri dishes, *A.* and *B.*, each containing agar, were touched at two spots by a platinum needle dipped into a solution containing a growth of *Bacillus coli communis*. *B.* was also touched at two other spots with a drop of boiled *Bacillus coli communis* solution. Both surfaces were then rubbed over with a sterilised glass rod. At the end of thirty-

six hours the growth on dish *B.* gave evidence of having been more rapid and abundant.

In disease, therefore, if one could destroy some of the organisms locally, one ought to get a more rapid cure of the disease. To do this, I rubbed the skins of patients suffering from acne vulgaris with chloroform in order to remove the grease, and then applying a one per cent. solution of colloid mercury I was able to produce a good and quick recovery from the disease. The colloid mercury had undoubtedly killed some of the organisms *in situ*, which, being dead, helped to hurry on the stage of reverse fermentation, and, consequently, the cure.

The same method was applied in ringworm, and with equally good results.

Extending the application of this method to cases of membranous pharyngitis in which the Löffler's bacillus was present, by spraying or swabbing the throat with a one per cent. solution of colloid mercury (as supplied by Merck), I was able to get the membrane to disappear as rapidly as it does after an injection of diphtheria antitoxin, and without any unpleasant after-effects.

In scarlet fever the throat patches clear away very rapidly after having colloid mercury applied, and the question naturally arises whether, if applied early enough in cases that have been exposed to the infection, the colloid mercury would prevent the formation of by-products which may be the cause of an antitoxin rash—that is, the typical rash of scarlet fever.

I have had a few cases which might be used to bear out this theory, but, naturally, the point is difficult to prove. Some experiments done with mustard seeds seem to have some bearing on the subject. The seeds were divided into two lots, one of which was fertilised daily with the products of boiled mustard seeds, with the result that the lot so fertilised grew more rapidly and all at the same time, whereas the other lot gave rise to a second crop. It is this second crop that one tries to prevent in disease.

## PART II.

### REVIEWS AND BIBLIOGRAPHICAL NOTICES.

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*Modern Surgical Technique in its Relation to Operations and Wound Treatment.* By C. YELVERTON PEARSON, M.D., M.Ch., F.R.C.S.; Professor of Surgery, University College, Cork, &c. London: John Bale, Sons & Danielsson. 1911. Demy 8vo. Pp. xix + 484.

THIS is the second edition of the above-named work which has been added to and brought up to date. The subject has been carefully, thoroughly, and minutely treated under four headings.

Part I. deals with bacteriology, the principles of aseptic surgery, natural and acquired immunity, the standardisation of disinfectants, &c., and contains many formulæ for making up solutions, emulsions, &c.

Part II. deals with disinfecting hands, the use of gloves, the preparation of the patient, &c.

Part III. Wound technique.

Part IV., Operative technique.

We notice that Mr. Pearson does not use gloves except when he is dealing with septic cases or when his hands are not in perfect cosmetic condition. He admits that perfect sterilisation of the hands is in practice impossible, and he states that rough hands cannot even be improved in surgical cleanliness by attempts at sterilisation, yet he leaves it to the surgeon to judge whether he will on any specific occasion use gloves or not use them.

This would seem a very doubtful policy, and one open to many objections if practised by the general run of surgeons. Many improvements in this edition are gleaned from American sources, which is an additional proof of the great advance which has recently taken place in surgery across the Atlantic.

We note with pleasure that clear directions are given for preparing catgut by Bartlett's method, bismuth-vaseline paste, iodoform wax, and many other valuable aids to the surgeon.

Mr. Pearson is to be congratulated on producing a work which will prove of the greatest use to theatre assistants and house surgeons. Nowadays, when so many books are written from the advertising point of view, it is a relief to get one which points to good and careful work done in a quiet way.

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*Guy's Hospital Reports.* Vol. LXIV. Edited by F. J. STEWARD, M.S., and HERBERT FRENCH, M.D.  
London: J. & A. Churchill. 1910. 8vo. Pp. xxxix + 475.

THE most important single contribution to this excellent volume of Reports is Professor Starling's elaborate paper on the "Physiology of Digestion," which gained the Astley Cooper prize for 1910. The article gives in a comprehensive and readable form an account of the digestion and absorption of food during its passage through the alimentary canal, and may be regarded as an authoritative and critical compilation in somewhat summarised form of all that is known on the subject. For those who have been following the recent work on digestion little that is new is reported, but even they will find this article a convenient and continuous study which combines into coherent form the mass of details which have of late years been collected. So much knowledge has, however, been gained recently in this department of physiology that many busy medical men must have found it impossible to know what to accept and what to disbelieve amongst the recorded and disputed statements of investigators, and still more must have found it impossible to keep in touch at all with modern developments. To all such, and we believe they are very many, we most strongly commend this paper for profitable and pleasurable perusal. Many other important papers are contained in this volume. Dr. Swan analyses the records of ninety-two cases of

primary renal tuberculosis. Amongst his conclusions we notice that he recommends nephrectomy in all cases where only one kidney is involved and the other kidney is sound, provided no other extensive tuberculous lesion exists in the body. His experience of vaccine treatment we would judge to be rather scanty, as since the value of vaccines has become known, the above conclusion appears to us to be hardly applicable in all cases. The paper is careful and contains many interesting points impossible to allude to here. Hertz and others write on "The Sensibility of the Alimentary Canal." They find that the normal stomach and œsophagus are incapable of appreciating the presence of 0.5 per cent. hydrochloric acid. Goodhart reports some experimental cases of liver necrosis following chloroform anæsthesia. The "Treatment of Appendicitis" receives instructive notice in an analysis of the records of 545 cases by Nathan Mutch. Other papers are—"The Thymus Gland and the Status Lymphaticus," by Carlyll; "Vaccination and Mendelism," by Assheton; "The Influence of Anæsthetics on the Blood Pressure," by Charles Edwards; "Statistics of Ulcerative Colitis" and "Acquired Diverticula of the Sigmoid," both by H. C. Cameron and C. H. Rippman. Some clinical records of unusual cases are also reported.

The volume maintains the high standard of excellence that former numbers has led us to expect.

*An Introduction to Dermatology.* By NORMAN WALKER, M.D., F.R.C.P.; Physician for Diseases of the Skin, the Royal Infirmary, Edinburgh. Fifth Edition. With 43 Coloured Plates and 79 Illustrations in the Text. Edinburgh and London: William Green & Sons. 1911. Demy 8vo. Pp. xviii + 346.

BUT little more than two years have elapsed since the fourth edition of this excellent text-book was published, and now a fifth edition lies on our desk. It does not differ materially from its predecessor, but traces of careful revision are met with throughout the work. At pages 33

to 35 a clear description is given of freezing as a remedy in lupus erythematosus, nævus, carcinoma, rodent ulcer, &c. All the apparatus required is a cylinder of carbonic acid gas, a bag of chamois leather, and some simple means, such as an ordinary minim measure glass, for shaping the "snow" into the required form.

"Folliculitis decalvans" is described at page 222, and sporotrichosis—a fungus disease first described by Schenk in 1898—at page 276, opposite which is a photographic plate showing the affection in a case observed by the author, and in his belief the first recorded in the United Kingdom.

"Dermatitis artefacta" is named by the author "Dermatitis autophytica," at page 74. In a footnote he apologetically admits that "this is the first time I have been guilty of adding to dermatological nomenclature." Our verdict is—"Found guilty, but acquitted under the 'First Offenders Act.'"

One of the most impressive features of Dr. Norman Walker's text-book is the beauty of the numerous coloured plates and illustrations. These alone are worth the cost of the work, which is twelve shillings net.

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*Gynæcology for Nurses and Gynæcological Nursing.* By COMYNS BERKELEY, M.B., B.C. Cantab, &c., &c. London: The Scientific Press, Ltd. 1910. Cr. 8vo. Pp. viii + 114.

THE difficulties that arise in writing a book of this kind are many, chief among them being that of knowing when one has said enough upon a subject. Most books written for the guidance of nurses err upon the side of telling a great deal more than is necessary, and thus tending to cause confusion of mind. The author of this little book has performed his task excellently, describing the symptoms of the conditions as they arise clearly and concisely and in simple English such as no one could misunderstand. The few plates which illustrate the first portion of the text dealing with the anatomy of the pelvis are quite sufficient, but in comparing the figures repre-

senting the measurements of the uterus in Fig. I. with those given on page 7 we find a certain disparity. We are glad to notice that on more than one occasion particular stress is laid upon the early diagnosis of cancer and the importance of urging patients to seek medical advice should symptoms arise, however remotely suggestive. We believe that a large proportion of the success of operative procedures for cancer lies in the hands of the nurse, and in particular those nurses who have had training in gynaecology. We feel assured of the success of Dr. Comyns Berkeley's book.

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*Golden Rules of Obstetric Practice.* By W. E. FOTHERGILL, M.A., B.Sc., M.D. "Golden Rule" Series. No. III. Sixth Edition. Bristol: John Wright & Sons, Ltd.

*Golden Rules for Diseases of Infants and Children.* By GEORGE CARPENTER, M.D. Revised and partly re-written by E. BELLINGHAM SMITH, M.D., B.Sc. "Golden Rule" Series. No. XI. Bristol: John Wright & Sons, Ltd.

THESE little books are so well known as to need no introduction. The fact that one has reached its sixth edition and the other its fourth proves the popularity in which the series is held.

The volume dealing with diseases of infants and children has been revised and partly re-written by Dr. Bellingham Smith and brought thoroughly up to date. The portion dealing with skin diseases has been omitted in order to keep the book within its original limits, but skin diseases have a separate volume in the series devoted to them.

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*Urine Examination Made Easy.* By THOMAS CARRUTHERS, M.A., M.B. Second Edition. London: J. & A. Churchill. 1911. Pp. 47.

IN Ireland we are not accustomed to leave even elementary urine testing to be done by nurses, but if we concede that

circumstances may exist where it may be convenient and safe to rely upon nurses' observations on such a subject the present notes may be of value. They are dogmatic and limited, and even the word urine itself receives a definition, so the nurse who intends to use this book as a guide need not be alarmed lest it should be above her intelligence. At the same time it contains all that a nurse need know on the subject of urine testing, be she ever so ambitious to succeed in her own profession. In glancing through the booklet we did not detect any errors. The nurse is wisely advised to refer any matters on which she may doubt her own knowledge to the attendant doctor.

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*The Feeble-Minded.* By E. B. SHERLOCK, M.D., B.Sc.  
Lond., D.P.H. London: Macmillan & Co. 1911.  
Demy 8vo. Pp. xx + 327.

THIS work is another contribution to the voluminous literature dealing with the subjects so recently before the Royal Commission on the Care and Control of the Feeble-minded. Written by a lawyer who is also a medical man, the author looks upon the philosophical and biological problems inseparable from the subject of heredity from a more or less practical standpoint. The book is of decided value and usefulness. The pathological matter is up-to-date, and deals with the various forms of cerebral structure change associated with mental defect with clearness and accuracy of descriptive detail. The illustrations of the familiar types of idiocy (microcephalic and mongolian), and the photographs of defective brains are interesting and well done. We would like, however, to see more space devoted to the histology of the defective cortex, and some microphotographs of cellular changes would have added greatly to the work.

Sir H. B. Donkin, a member of the late Royal Commission on the Care and Control of the Feeble-minded, has written an introductory note of two pages which expresses the writer's approval of the scheme of classification adopted by the author, especially as it is in accord-

ance with the views of the Royal Commissioners. This must be very satisfactory to everybody. In much of the literature which one reads dealing with the subject of the feeble-minded problem one finds much of transcendental philosophy. In this work, however, the philosophical and sociological aspects are looked at through a physician's spectacles, and an endeavour is made to fix definite biological facts to theories.

The work is divided into seven chapters, and the seventh and last of these bears the heading "The Handling of the Feeble-minded." This is devoted to the consideration of the scheme of practical treatment of the mentally unfit, and advocates the establishment of labour colonies. Here is an ideal plan for a large institution to accommodate 2,000 patients of both sexes, and a ground plan for the erection of the same. One sometimes wonders if philanthropic sociologists ever consider the question which occurs to us in thinking of the erection of institutions of this nature. One wonders if imbeciles and idiots and epileptic persons with mental defects are all to be regarded as "Peter Pans" boys and girls who never grow up. If boys and girls are admitted to even the most ideal and Utopian institutions, and under the best possible conditions, a certain proportion, and a large proportion, were never, and can never be, normal individuals. One is told, and one can readily believe, that the association of young imbeciles and idiots with the adult insane is most injurious to the imbecile. That is the defect of treating imbeciles and feeble-minded persons in the existing district asylums. When the idiot and imbecile grows up must he or she be passed on to the district asylum to make room for the younger generations of hopefuls? What time will be the limit of their educational sojourn in the fields of culture of the modern Utopias for nature's step-children? Where does the ubiquitous person, the British taxpayer, come in? One would like to see more ample consideration of this very important eugenical question of asexualisation dealt with by the author of the book under review. This question, however distasteful to the more refined sociologist, is of urgent and practical interest.

Already it has been dealt with by legislation, and has become an established practice in other countries. In our humble opinion the proverb "prevention is better than cure," applied to the prevention of imbeciles and idiots, is a word of wisdom absent from most treatises which seek in mere philosophical and biological and Mendelian hypotheses an explanation of the cosmos of an individual gendered by human wastrels. We would like to quote old Burton, whose "Anatomy of Melancholy" contains more sound sense than many of the proposals of the recent Royal Commission on the Care and Control of the Feeble-minded. We wish it were prefixed to the book under review instead of the note by Sir H. B. Donkin :—

"So many several ways are we plagued and punished for our fathers' defaults insomuch as (Fernelius truly saith) it is the greatest part of our felicity to be well born, as it were happy for human kind if only such parents as are sound of body and mind should be suffered to marry.

"An husbandman will sow none but the best and choicest seed upon his land, he will not rear a bull or a horse except he be right shapen in all parts, or permit him to cover a mare except he be well assured of his breed. We make choice of the best rams for our sheep, rear the best kine, and keep the best dogs. *Quanto id diligentius in procreandis liberis observandum?* and how careful then, should we be in begetting our children. Heretofore, in Scotland (saith Boëtius) if any were visited with the falling sickness, madness, gout, and leprosie, or any such dangerous disease which was likely to be propogative from the father to the son, he was instantly gelded; a woman, kept from all company of men, and if, by chance, having some such disease, she were found with child, she, with her brood, were buried alive. And this was done for the common good, lest the whole nation should be injured or corrupted. A severe doom, you will say, and not to be used amongst Christians, *yet more to be looked into than it is.*

"For now by our too much facility in this kind in giving way for all to marry that will, too much liberty

and indulgence in tolerating all sorts, there is a vast confusion of heredity diseases, no family secure, no man almost free from some grievous infirmity or other. When no choice is had, but still the eldest must marry, as so many stallions for the race, or if rich, be they fools or dizzards, lame or maimed, unable, intemperate, dissolute, exhausted through riot, as he said—'Jure hæreditario sapere jubentur,' and they must be wise and able by inheritance, it comes to pass that our generation is corrupt, we have many weak persons, both in body and mind. Many feral diseases ranging amongst our crazed families. 'Parentes peremptores.' Our fathers bad, and we like to be worse."

We quote the above words of "Democritus, Junior," believing them to be a very suitable preface and finis for this modern treatise on the "Feeble-minded."

*The Doctor's Dilemma, Getting Married, and the Showing-up of Blanco Posnet.* By BERNARD SHAW. London: Constable & Co. 1911. Cr. 8vo. Pp. xciv + 407.

MUCH may be forgiven to a man who amuses us. We may, therefore, forgive Bernard Shaw for the writing of this book. The present reviewer—a medical man of course—has derived more amusement from reading the Preface on Doctors than he could have derived from a score of evenings devoted to listening to one surgeon running down all others. Doctors as a group possess a sense of humour, and nothing delights them more than to find themselves run down by one who knows nothing about them. To be scoffed at in eighty pages by Bernard Shaw is indeed a triumph, if only a stale one, for Bernard Shaw's remarks are worse than the curate's egg—they are stale throughout. It is bitter, however, to find occasional unrepressed outbursts of admiration ill mixed with jibes. We can tolerate the latter, but the magnanimity of the former is, to quote a term on which the author seems to pride himself, breath-bereaving. To criticise the preface as a whole is impossible, to comment on it paragraph by paragraph—the only way in which it could

really be dealt with—is not worth while. It is simpler to merely admire it, to admit its truth, and to say that we don't care. No one else, we fancy, cares. We cannot put up with the remarks of the gentleman who, on the strength of subscribing a pound to a hospital and being a judge, takes the chair at an annual hospital meeting and patronises the profession by calling it a noble one, but with Bernard Shaw we—the reviewer speaks for himself—see eye to eye. His remarks are, indeed, so cheap that we can almost imagine some one with insight equal to his own trying to refute them. We have even heard of some medical men being annoyed by reason of them, but over such tragedies of the profession we skim lightly. Our remarks, so far, seem to have about as much sense as those of Bernard Shaw, but as we are trying to review his book, we hope they will either not be read or will be regarded as bearing their apology with them. We should add that the preface is a mild and ill-sustained tirade against doctors in general, against operations, vivisection, and vaccination in particular.

The dramatic possibilities of vaccine-therapy are to be found, we are told, in "*The Doctor's Dilemma.*" Farce, founded on ignorance, may mean drama as defined by one who is a specialist in immoral and heretical plays, but such use of the English language recalls the average American text-book. Many of the characters in the play are true to life—a paltry phrase—and illustrate the profoundly superficial depths of the author's knowledge of human nature. Perhaps, in fairness, we should add that profundity and superficiality, combined with a pleasing manner, are not unknown amongst the people he portrays. We had one regret while reading this play, and that is that we had not instead an opportunity of seeing it staged. Bernard Shaw—we refer, of course, to his writings—should be seen and not read. When seen, we laugh, and so his main object in life, as we interpret it, is fulfilled. The plot of this five-act play does not call for analysis. It is somewhat technical and technically faulty.

"Getting Married" is a lengthy sermon. The preface that precedes it would shock some people: the play itself

would bore more. Both preface and play deal with the anomalies and absurdities of our present marriage system. We wonder is the author serious in all he says. He certainly seems to advocate, practically, submission to the accepted order of things, however theoretically he may object to that order. The most dignified and interesting figure in the play is Lesbia, an unmarried woman, who longs to have children of her own to bring up, but who will not tolerate the added necessity of a husband, and therefore remains austere single from choice. Such persons, Shaw thinks, have an undoubted right to motherhood, and would make excellent mothers, as experience teaches, since it is just those people that we select to make the matrons of our institutions and to control our charities. If, however, all these could be granted their supposed wish and given children of their own, a problem would be created that even Shaw might have a difficulty in solving. Few women with children of their own have time or inclination to devote their lives to the welfare of others, and so our institutions would be left matronless. A surplus of women seems, after all, a necessity.

The "Showing-up of Blanco Posnet" has so often been seen in Dublin that remarks upon the play would be superfluous. It strikes us as harmless melodrama. It is preceded in this volume by an article on the stage censorship, which, allowing for exaggeration and grotesqueness in style, is convincing. We share in Bernard Shaw's surprise that his statement on the subject should have been rejected by the committee which recently inquired into the censorship.

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*Sight-testing Mady Easy.* By W. WRIGHT HARDWICKE, M.D. London : J. & A. Churchill. 1909. Cr. 8vo. Pp. 66.

ORIGINALLY compiled in the form of notes, as aids to memory, this little manual grew to its present size of 66 pages. It is not intended, the author says, to supersede larger and more comprehensive works on refraction, but merely to act as companion to them, and enable the busy

practitioner to test the sight of a patient, and prescribe the necessary correcting glasses in the shortest possible space of time. It is unfortunate that Dr. Hardwicke has elected to make some of his explanations in such a way as to bewilder the reader; for instance, on page 10 he says:—"Good or normal vision can only be obtained if the axial length of the eyeball and the focal length of vision are the same." "The focal length of vision" is surely an unusual expression!

Again, on the same page, we find:—"Accommodation is the voluntary power which every emmetrope possesses," &c. Why does he restrict accommodation to emmetropes?

Again, on page 12, he says:—"The p. p. or 'near point' in the emmetrope at which objects can be seen by the exercise of accommodation is 22 cm." He does not seem to know that this entirely depends on the age of the patient.

Again, on page 18, when talking of "Myopia," he says:—"In order to see near objects the eyes must converge, with the result that, when reading, the book is held close to the eyes, and if this convergence be not counteracted ultimate blindness may ensue."

On page 45 we are told that "Refractive conditions known to exist should be worn during the test."

The book is full of such surprising announcements, and we fear that the unfortunate general practitioner who tried to discover their meaning would soon find himself in a sea of troubles far beyond his depth. Sight-testing, always a difficult matter, is *not* made easy by such books.

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*The Jews: A Study of Race and Environment.* By MAURICE FISHBERG. London and Felling-on-Tyne: Walter Scott Publishing Co., Ltd. 1911. Cr. Svo. Pp. xix + 507.

THIS new volume of the Contemporary Science Series is a remarkable book, and one of great interest. It shows unexpected diversities in the Jewish race and the existence of a gradual obliteration of racial differences that will

come as a surprise to the general reader. The author believes that the differences between Christians and Jews are not everywhere racial, due to anatomical or physiological peculiarities, but are solely the result of social and political environment; he is, therefore, optimistic as to the coming obliteration of all distinctions between Jews and Christians in Europe and America.

The author has studied the anthropological characteristics in New York City, where he had a rich field of over a million Jews hailing from Europe, Asia and Africa; for the changes in their physical, social and economic conditions he studied the Jews under emancipation in Western Europe and America. The interest of the subject is well shown in the following paragraph:—

“It is of vital importance to the Jews, as well as the people among whom they live, whether they really differ radically, whether they are of different race stock when compared with the *Homo Europæus*, and whether their prepotency is so strong that they can never be assimilated by people of different origin.”

The modern Jews do not present a homogeneity of physical type; the differences are mainly in the more persistent traits which depend upon heredity for their transmission—some of the differences, however, can be attributed to physical and social environment. But though these latter may influence the psychic, moral, and intellectual capacities, they cannot change the colour of the hair or the shape of the heads.

That fusion is going on is shown by only from one to five per cent. of Jews being blonde in Arabia, Africa, and the Caucasus, where the non-Jewish population is brunette; whilst in blonde Germany the proportion of blondes amongst the Jews reaches thirty per cent. In the same way there are three main types of head-form amongst Jews, and the predominant type is that of the race amidst which they are domiciled.

The chapters dealing with the incidence of disease and mortality are of absorbing medical interest, although—or perhaps because—they overthrow many time-honoured theories. Their resistance to tuberculosis is, according

to the author, the result of living for eighteen hundred years under such insanitary conditions that those predisposed to tuberculosis have been effectively weeded out. When Jews from Eastern European ghettos move to the slums of New York no material change is made in their surroundings; but with people of other nationalities, mostly drawn from the farming classes, the change is tremendous, and the resulting tuberculosis mortality is appalling.

The mediæval stories of the immunity from disease are shown to be untrue, and the reliability of the chronicler of these times can be deduced by his working rule—If the Jews did not get the disease they had evidently poisoned the wells of the Christians: if they did suffer they were the cause of spreading the disease to others!

The illustrations are frequent and good, a surprising number being of Jews who do not present the facial characteristics we generally associate with the race.

"The Jews" is not a book to borrow; it is a book to read, and re-read, and to keep for reference.

*Handbook of Treatment for Diseases of the Eye (Ophthalmic Therapeutics).* By DR. CURT ADAM. Translated from the Second German Edition (1910) by WILLIAM GEORGE SYM, M.D., and E. M. LITHGOW, M.B. With 36 Illustrations. London: Rebman, Ltd. 1911. Cr. 8vo. Pp. xii + 264.

It is a somewhat new departure to write a book on the treatment of eye diseases alone, taking for granted that the diagnosis has been correctly made. It has the advantage of keeping the book small, and yet allowing space for a fuller description of therapeutic methods than is generally to be found in the text-books which combine a description of the method of diagnosing the diseases and an account of their pathology with their treatment.

The book is primarily designed for the surgeon in general practice, but the specialist will find some interest-

ing reading in the chapter which gives a critical analysis of the relative value of various modern therapeutic agents.

The translators have done their work well, but perhaps a little too faithfully, as at times the German idiom has manifested itself to the detriment of good English, and it is not always very easy to follow the descriptions given.

The book is nicely got up, and is well printed, with useful illustrations.

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*A Treatise on Diagnostic Methods of Examination.* By PROFESSOR DR. HERMANN SAHLI, Director of the Medical Clinic, University of Bern. Edited, with additions, by NATHANIEL BOWDITCH POTTER, M.D.; Physician to the New York City Hospital. Second Edition, being an Authorised Translation from the Fifth German Edition. Philadelphia and London: W. B. Saunders Co. 1911. 8vo. Pp. 1229.

SAHLI's book is too well known and appreciated to require a lengthy review. It has already brought the author world-wide fame, and it is no exaggeration to say that it is in use as a work of reference in almost every medical centre in Europe and America. A volume of nearly 1,200 pages is plainly one that no reviewer can be expected to read through. The detailed nature of the subject-matter further precludes more than a general survey. The author lays stress in his preface on the fact that his book is not a mere compilation, and that its major portion is derived from his own experience and personal observation. In this lies the main value of a most valuable work. A student of medicine—we refer to practising physicians—does not wish for a mere summary of all possible methods of examination, but for a careful account of methods found useful by a trustworthy and careful clinician, who knows the relative value of clinical and laboratory investigation. Such an account he will find here *par excellence*.

The first four chapters are devoted to the methods of obtaining the personal history of the patient, and of observing his general condition and state of nutrition. They are followed by chapters on the examination of the

skin, the determination of the body temperature, and the character of the respiration. An elaborate chapter on the pulse, including a description of sphygmographic and sphygomanometric instruments, with the methods of using them, follows. The methods of examining the thoracic organs by percussion and auscultation, and the abdominal organs by inspection and palpation are next dealt with, and later the chemical and other methods of examining stomach contents, fæces, urine, sputum and blood are carefully described. Special articles on laryngoscopy, rhinoscopy, ophthalmoscopy, and on exploratory punctures are given, while the last couple of hundred pages are devoted to a comprehensive account of the examination of the nervous system. The chapter on the examination of the urine is, perhaps, worthy of special mention. It is well illustrated, as is indeed the entire book, which contains nearly 500 illustrations, including eleven plates, some of which are in colours. The article on the examination of the blood may also, perhaps, be specially referred to. It contains Plate V., which depicts in colours the various forms of normal and abnormal cells that may be encountered in blood examinations, and which is, we believe, the most useful illustration in the book. The special subjects of rhinoscopy and ophthalmoscopy are only briefly dealt with, as might be expected, as, of course, detailed consideration of these subjects is outside the scope of general medicine. We may conclude this brief notice of the work by adding that it is thoroughly scientific throughout, and is in every way up-to-date and reliable. The translator may be congratulated on having done Professor Sahli's text full justice.

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*Military Sanitation and Hygiene.* By E. BLAKE KNOX, B.A., M.D., D.P.H. (Hons.); Captain, R.A.M.C. London: Baillière, Tindall & Cox. 1911. Cr. Svo. Pp. xii + 346.

FOR some years back attention has been directed to the marvellous improvement which has been steadily taking place in the health and physical efficiency of the British

Army in all parts of the world. Unaided by public encouragement, the Royal Army Medical Corps has been carrying on silently and unobtrusively reforms in the prevention of disease whereby the incidence of sickness has been so reduced that many of the military hospitals have had their bed accommodation considerably lessened. Napoleon was content to lose men by the hundred thousand through neglect of health, but the combatant officer of the present day knows well that the number of men he can muster depends on the thoroughness or otherwise by which the methods advised by the medical branch of the army are carried out.

It is to explain the ways and means of these methods that Captain E. Blake Knox, of the Royal Army Medical Corps, has placed the salient details of "Military Sanitation and Hygiene" before the public. The writings of this officer are not unknown. It may be remembered that his book entitled "Buller's Campaign with the Natal Field Force, 1900," was most favourably noticed by the London and provincial Press at the time of publication. Captain Blake Knox writes from an experience of twelve years' army service, during which time he filled many important appointments which brought him into close contact with the troops under varying conditions in three Continents. The work now issued contains a concise account of the inner working of the British Army in its fight with disease in its hydra-headed forms. It also deals with the prevention of disease, and the maintenance of efficiency generally.

Notwithstanding its military title, the book should prove of interest not only to the army but also to the public in view of the campaign now being waged in all parts of the United Kingdom and our Colonies for the improvement of the public health generally, for its pages contain all the principles of attaining robust health in all grades of society. We may add that what has been attained in the army should to an equal degree be made applicable to civil life.

The book consists of twelve chapters, an appendix, and an index. The subjects discussed in the chapters are : The

medical inspection of troops in barracks and the sanitary inspection of barracks, military barracks, the disposal of excreta and sewage from barracks, camp sanitation, conservancy and other arrangements for encampments, water supplies in camps, the food of the soldier, clothing, equipment and bedding, marching, physical efficiency, disinfection and infectious diseases, sanitary reports. The text is illustrated by twenty-one woodcuts.

In the Appendix are embodied specimen examination questions on sanitation and epidemiology in their application to military life. The questions have actually been set to officers of the army for promotion to higher rank. The passing of an examination in these subjects is now compulsory in all branches of the service.

Although it is not so stated on the title-page, Captain Blake Knox is a distinguished Graduate in Arts and Medicine of the University of Dublin. In 1907 he obtained the Conjoint Diploma of the Irish Royal Colleges of Physicians and Surgeons with Honours.

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*History of Medicine.* By DR. MAX NEUBERGER, Professor of Medical History in the Imperial University of Vienna. Translated by ERNEST PLAYFAIR, M.B., M.R.C.P. In Two Volumes. Vol. I. London: Oxford University Press; Henry Frowde and Hodder & Stoughton. 1910. 8vo. Pp. x + 404.

WHEN Charles Darwin in 1859 enunciated the doctrine of the evolution of species he gave not only a new stimulus to the study of biology, but he also indirectly modified our views in almost every department of human thought. In the study of history this modification is particularly noticeable, and it has added to the subject a new significance and a greatly increased interest. History can no longer be looked on as a dry record of the facts and occurrences of former days, of mere antiquarian or academic interest, and without practical bearing on our lives of to-day. The study of history is now recognised as part of the study of biology in its widest sense, and a knowledge of past events is essential to a proper compre-

hension of the occurrences of our own time. Side by side with this widening of our views of the significance of history there has taken place a unification of the subject as a whole, and the interdependence of the various departments of history is now appreciated in a way that would seem quite strange to the older writers. With this change in our ideas medical history has assumed a new and a far-reaching importance, since there is scarcely a phase of human thought with which medicine is not intimately associated. A knowledge of medical history illuminates and explains much that is obscure in history in general, and a knowledge of current general history is necessary if one wishes properly to understand and appreciate the growth of Medicine. While this increase in scope has added interest to the subject it has also added considerably to the difficulty of its study, and we are still far from the time when the perfect history will be written. In writing the history of a technical subject this difficulty is increased, for not only does the historian require a full knowledge of the general events of the time of which he writes, but he also needs a minute technical knowledge of the special subject he is engaged on. Medicine has grown to such an extent, and its connections with other branches of science and human activity are so wide and intricate, that an almost encyclopaedic knowledge is necessary to elucidate its history. Much work, too, remains to be done before even the materials for a complete history of Medicine are available for the student, for, as our author tell us, there are numbers of manuscripts dealing with Arabic Medicine which are still unused in the libraries. As time goes on, and as the number of workers increases, these materials will, no doubt, be made available, and some of the gaps in our knowledge filled, though, it is to be feared, gaps will still remain, for probably much has been for ever lost, destroyed by the ruthless hand of time and the sacrilege of bigotry and ignorance. Scholars, particularly in Germany and France, are doing much to fill these gaps, and to them the whole world of Medicine is deeply indebted, not only for the positive work that they have

accomplished, but also for the stimulus they have given to others. We regret to say that latterly British Medicine has been very backward in this work, and very little work of the first class in medical history has been published in recent years in Great Britain. In many of the foreign universities there are chairs of Medical History, but in England there is only one—the Fitzpatrick Foundation, established in the Royal College of Physicians in 1901. If the study of this subject is to make any progress in these countries it must be assisted by the Universities, for we fear medical practitioners will not be able to afford the necessary time and money to accomplish much really useful work. We are, however, hopeful that in the near future the Universities will afford this necessary assistance. The publication of Dr. Playfair's translation of Max Neuberger's "*History of Medicine*" will, we hope, do much to stimulate interest in the subject in these countries, since it has placed in the hands of English readers a really satisfactory synopsis of the growth of Medicine from the earliest times. The present volume brings the record down as far as the Arabic period only; but the whole story is full of interest, and a knowledge of it is necessary if one wishes to understand and appreciate the development of Western ideas. We were particularly interested in the section that deals with Byzantine Period, a period that forms the connection between Greek Medicine and that of the Arabs, and one about which less, perhaps, has been written than about any other. During this period, though not much really epoch-marking work was done, still there was a more or less continuous growth in knowledge, and facts and observations were accumulated which were of the first importance for subsequent investigators.

Though we select this one period for special mention, it is because it had special interest for us personally, and not because we undervalue the account of the other periods dealt with. The whole study is full of interest, and it will not be to the advantage of the student if he neglects any part of it.

To the translator our thanks are due for his excellent

translation. It is in good English, reads smoothly, and at once inspires one with confidence in its accuracy. To Professor Osler, too, our warmest thanks are due. By his suggestion that the work should be translated we have been given the present publication, and by it he has added another to the many good offices he has done for medical history since he came to England. T. P. C. K.

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*Errors of Refraction and their Treatment.* A Clinical Pocket-book for Practitioners and Students. By CHARLES BLAIR, M.D., F.R.C.S. Second Edition. Bristol: John Wright & Sons, Ltd. London: Simpkin, Marshall, Hamilton, Kent & Co., Ltd. 1910. Small 8vo. Pp. 106.

THE object of this little book, the author says, is to endeavour to supply, in a condensed form, the more practical and clinical points in connection with errors of refraction, in the hope that it may be of use to some who are not able to give much time to this relatively uninteresting subject. When reviewing the first edition we made sufficient comment upon its general features.

Of its kind this little book is excellent, but we are not convinced that such concentrated information is wholesome food for the student, though it may serve as a useful notebook to one who has already learned the subject elsewhere.

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*Merck's Index.* III. Auflage, abgeschlossen Ende Mai, 1910. Darmstadt: Eduard Roether. Juni, 1910. Pp. xii + 392.

THE first edition of this valuable book of reference to Therapeutics and Materia Medica was published in September, 1897. The second edition appeared in July, 1902, the large number of 15,000 copies of the first issue having been entirely disposed of within six years.

The work is divided into six parts. The first of these is headed "Preparations." These are arranged in alphabetical order, and include special lists of anilin and other

tar colour-derivatives, animal extracts, serums and antigens. The second part includes preparations for analysis and microscopy; the third consists of a "Materia Medica"; the fourth gives a list of "minerals" based on P. Groth's "Tabellarischer Uebersicht der Mineralien."

Merck's Index in its character and scope reminds us of Martindale's and Westcott's "Extra Pharmacopœia," and this is paying the "Index" a high compliment.

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*Surgery of Genito-Urinary Organs.* By J. W. S. GOULEY, M.D. London and New York: Rebman, Ltd. 1907. 8vo. Pp. x + 531.

THIS work seems to be a series of clinical demonstrations on urinary surgery, containing a quantity of good material but put together without much attempt at system. A great deal of the advice given is sound, and, as the author's style is clear, the book should prove of use to beginners. It has, however, two serious defects—the pathology of the various affections is either very lightly touched on or not mentioned at all. Again, modern methods of investigation are not recommended by the author. Mr. Gouley will not get many urologists to agree with him that passing a long forceps through the urethra into the male bladder, and by this means attempting to find and tear off a piece of new growth, if such is present, is a better method of making the diagnosis of vesical tumour than a cystoscopic examination.

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*Man's Redemption of Man.* A Lay Sermon, McEwan Hall, Edinburgh, Sunday, July 2nd, 1910. By WILLIAM OSLER. London: Constable & Co., Ltd. 1910. Small Cr. 8vo. Pp. 60.

By means of short lines and heavy leads Dr. Osler's lay sermon appears with the *format* of a booklet. It is an interesting summary of the benefits reaped by mankind from the labours of the searchers after scientific truth. No longer is the fall of man our keynote, but his physical regeneration, the relief of pain, the lessened zymotic

death-rate, the searching out of the causation of parasitic and that triumph of this generation, the determining the cause of that great infection of the world, tuberculosis, are but few ways in which man is redeeming man, and more is to come—"Fight for the day when a man's life shall be more precious than gold. Now, alas! the cheapness of life is every day's tragedy!"

The "Sermon" is not without its practical side:—

"I would like to issue a Mount Carmel-like challenge to any ten unvaccinated priests of Baal. I will take ten selected vaccinated persons, and help in the next severe epidemic, with ten selected unvaccinated persons (if available!) I should choose three Members of Parliament, three anti-vaccination doctors, if they could be found, and four anti-vaccination propagandists. And I will make this promise—neither to jeer nor to jibe when they catch the disease, but to look after them as brothers; and for the three or four who are certain to die I will try to arrange the funerals with all the pomp and ceremony of an anti-vaccination demonstration."

It is a pity that quite a number of misprints disfigure this dainty booklet.

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*Children: A Märchen.* By HUGO SALUS. English Translation by A. C. CATON. London. 1910. The Mother Series. Pp. 24.

THIS booklet is the first of a series known as The Mother Books. It contains a sentimentally told fairy-story (of no particular literary merit) which is meant to initiate the child of six or seven years into the mysteries connected with and preceding his birth. The original is by an Austrian doctor. The translation, which seems to be a good one, is by A. C. Caton.

We hope the work may prove acceptable to those for whom it is intended. It is of no use to us.

PART III.  
MEDICAL MISCELLANY.

*Reports, Transactions, and Scientific Intelligence.*

ROYAL ACADEMY OF MEDICINE IN IRELAND.

President—SIR CHARLES BALL, M.D., F.R.C.S.I.  
General Secretary—J. A. SCOTT, M.D., F.R.C.S.I.

SECTION OF MEDICINE.

President—SIR JOHN MOORE, M.D., D.Sc., F.R.C.P.I.  
Sectional Secretary—F. C. PURSER, M.D., F.R.C.P.I.

*Friday, February 10, 1911.*

THE PRESIDENT in the Chair.

(a) *Athetosis.* (b) *Occupation Neurosis.*

DR. O'CARROLL showed two cases illustrating these conditions.

(a) The first case was that of a schoolgirl, aged nine. The patient's right hand had been for four or five years unmanageable for action. The thumb was fixed in a position of adduction, but otherwise there was no noticeable difference between the hands when at rest. Once movements were attempted slow, spastic movements were noted in the right hand and fingers. The child had had severe whooping-cough before the affection was noticed, and Dr. O'Carroll considered this had led to a cortical hæmorrhage into the right hand area, the athetosis resulting therefrom. When left to herself the child, who had learned to write with her left hand, exhibited perfect "mirror writing." The condition was improving.

(b) The second case was that of a barber. This patient

exhibited weakness and choreiform movements in his right hand. His trouble had begun some ten months previously. At first there were malaise and difficulty in hair-cutting and shaving. These actions gradually became impossible. The patient was of a neurotic temperament. His work had kept him busy from early morning till late at night for many years. Dr. O'Carroll considered the movements in the patient's hand were fatigue phenomena, due to excessive use.

Dr. CROFTON discussed the share of toxins in producing the neuro-muscular condition in the second case, noting that the patient suffered from pyorrhœa alveolaris.

*The Differences in the Manifestations of Rheumatism in  
Childhood and in Adult Life.*

Dr. BOYD BARRETT read a paper on this topic. He referred to the occurrence in children of rheumatic tonsillitis, chorea, "growing-pains," rheumatic nodules, "stiff neck," and hip-joint affections of rheumatic origin, and cardiac trouble. Emphasis was laid on the absence of hyper-pyrexia and the rare occurrence in children of early years of acute poly-arthritis. He stated, in conclusion, that rheumatism in children was characterised by (1) the variety of its manifestations, (2) its insidious onset, (3) the mildness of the arthritic symptoms and the corresponding severity of the cardiac trouble.

This paper gave rise to a lively discussion, in which the CHAIRMAN, and Drs. O'CARROLL, DRURY and DAY, and Sir W. J. THOMPSON took part.

*Myasthenia Gravis.*

Dr. T. GILLMAN MOORHEAD read a paper on "Myasthenia Gravis." [It was published in the number of this Journal for March, 1911, page 161.]

Dr. CROFTON said he was much interested in Dr. Moorhead's paper, especially as regards the question of ætiology raised by the condition of the thymus gland and the infiltration of the muscles with small round cells. He referred to a report which had been made of two cases of thymic asthma, in which there had been extremely flabby muscles and general muscular exhaustion. The interest attached to these cases was the way in which they had been treated. Their blood condition was different to that which Dr. Moorhead

described. There were less than 5 per cent. of mononuclear cells. These two patients were treated by X-rays, and they got perfectly well; they lost their thymic asthma and their blood condition was restored to normal. Animals which had been injected with extract of thymus, causing toxic symptoms, died in the condition of asphyxia. He also referred to the effect of giving extracts of the sexual glands. The two lines of treatment might throw light on the condition of myasthenia gravis. First of all, X-ray treatment of the thymus might be tried, then extracts of the testis might be given. In many cases of neurasthenia testicular extract had produced marked improvement. Patients who complained greatly of tiredness improved in a remarkable way.

DR. MOORHEAD said that in his case of myasthenia gravis he had hopes of being able to find an enlarged thymus, but there was no enlargement of the area of dulness on percussion, so he did not think X-rays would be of use in that particular case. As to the thymus extracts producing toxic symptoms, he believed this was incorrect. He had repeatedly injected thymus extracts into animals, and never found any toxic symptoms whatever. The toxic symptoms in Dr. Crofton's case were probably due to sepsis. Dr. Henderson's researches had impressed him with the idea of working out the inter-relations between organs as regards the effect of certain obscure metabolic products. It might throw light on this case, in which he had found, so far, no single extract to be efficacious.

#### *A Case of Cerebral Tumour.*

DRS. PARSONS, BENSON, and WIGHAM and MR. JOHNSTON brought forward a case of intra-cranial tumour which was successfully localised and removed. The patient, aged thirty-six years, was admitted to the Royal City of Dublin Hospital suffering from severe and continuous headache of about five months' duration. On examination he was found to have double optic neuritis, more marked in the right eye than in the left, slight paresis of lower half of face on the left side, and slight deflection of the tongue, when protruded to the left. He positively denied any history of syphilis. He was given iodide of potassium, fifteen grains daily, for the following month, but the progress of his disease was definitely downward. He became odd in his manner, stupid, passed under

him, and developed marked ataxy of the lower extremities. A diagnosis of a tumour in the right frontal lobe in the neighbourhood of the face and tongue centres was made. Mr. Johnston trephined over this region, and removed a hardened mass in three portions, which was handed to Dr. Wigham, who reported that the mass was syphilitic. The operation was followed by complete loss of power in left arm and leg. The latter soon recovered, and later on he gained free power in both arm and leg. The optic neuritis rapidly subsided, and vision was almost normal when he was discharged. There was a marked improvement in his mental condition, and all ataxy had disappeared. His blood, tested by Wassermann's reaction, gave a positive result. He was discharged from hospital a little over two months after the operation, in full possession of his mental and physical faculties, except slight traces of optic neuritis, which was, however, in process of subsidence.

MR. A. H. BENSON said the case was the only one in which he had observed absolutely unequivocal signs of improvement in the optic neuritis after a decompression operation.

MR. G. JAMESON JOHNSTON described the technique of the operation.

DR. WIGHAM stated he had diagnosticated the specimen he had received as syphilitic. He had tried the Wassermann reaction on the same patient without knowing it was the same patient, and had found it positive.

DR. DONNELLY described two cases of a similar nature to that described by Dr. Parsons. In both cure seemed to follow the liberal administration of iodide of potassium.

DR. MELDON believed that potassium iodide acted only in those cases which had been well treated with mercury. He said also that he had administered the anæsthetic in this case, giving ether and oxygen, and that it was extremely satisfactory, there being no vomiting.

DR. PARSONS, in his reply, said the patient had been given over 400 grains of iodide of potassium, but that, despite this, his condition had got steadily worse.

Friday, March 10, 1911.

THE PRESIDENT in the Chair.

*Notes on Three Cases of Paratyphoid Fever.*

DR. GEORGE PEACOCKE described three cases of this affection which had occurred among the nursing staff of an hospital in the month of November, 1910. The symptoms were similar in all cases, and closely resembled those of enteric fever. The onset was sudden, with fever, general malaise, headache and pain in the neck and constipation. Rose-coloured spots were present on the abdomen in two cases, but in none was the spleen palpable. The duration of pyrexia varied from two weeks to four weeks. Phlebitis complicated one case and gall-stones another. Convalescence was in all cases prolonged. The agglutination test with Eberth's bacillus was negative in all the cases, but clumping occurred with a bacillus isolated from the urine of one case. This bacillus was subsequently proved to be *Paratyphoid A*.

DR. SCOTT said his attention was drawn to the fact that he failed to get the Widal reaction. He had an opportunity of examining a similar case in which he failed to get a reaction with typhoid bacilli. There is a peculiar condition in which the clumps consist only of two or three bacilli, and in which he always felt in doubt as to whether he should call the reaction positive or negative. When such clumping with typhoid bacilli occurred further investigation often proved the case to be one of paratyphoid fever.

DR. DAY said on making an examination of the blood in the mild cases which first seemed to be typhoid one often eventually found them to be paratyphoid. He did not think that paratyphoid was necessarily a mild disease, and mentioned the case of a man who went from bad to worse, and finally died from this disease.

DR. O'KELLY said he had a case of paratyphoid in which Peyer's patches were inflamed but not ulcerated; but on the ileo-cæcal valve there were very deep ulcers.

DR. BEWLEY mentioned three cases in young men who were brought into hospital. In one of these there was profuse hæmorrhage. He said that paratyphoid was much commoner than it was thought to be.

DR. O'FARRELL and the PRESIDENT also spoke. DR. PEACOCKE replied.

*Ætiology and Treatment of Diabetes Mellitus.*

DR. WM. MERVYN CROFTON read a paper on the above. [It will be found at page 420.]

DR. MOORHEAD said the treatment of diabetes mentioned by Dr. Crofton was built up by hypothesis based upon hypothesis. He asked what proof existed that Dr. Crofton's extract contained a co-ferment in this fluid. The only proof that he could find that this fluid contained any active principle was the statement published in a paper by Dr. Crofton last year, that this fluid enables the body to burn up its carbohydrates better, but that was an obvious *petitio principii* which no scientific man can accept. As regards secretin, he mentioned Dr. Starling's statement that this substance cannot be absorbed from the intestine, and he (the speaker) said that his experience was that this drug was valueless in pancreatic diabetes. Dr. Crofton had stated that he had seen cases of improvement follow which could not be attributed to anything else, but you will find variations in the amount of sugar and the absence of diacetic acid in diabetics without any treatment at all. He had given the drug a fair trial, and did not believe it to be of any use. As regards the combined action of pancreatic extract and muscle on carbohydrates, Cohnheim's experiments were still the subject of controversy. If they were not confirmed a great deal of Dr. Crofton's paper falls to the ground. Cohnheim's theory is first assumed to be true, and secondly it is assumed that quite likely the pancreas produces an immune body which takes part in metabolism. Another assumption is that there is a liability to bacterial infection—a liability which he quite admits—but when he comes to the explanation that it is due to the absence of an immune body he finds merely unproved assumption based upon unproved assumption. As regards lesions in the pancreas it depended on whether one was looking for them or not. One person says that the islands of Langerhans are positively destroyed, while another says that the islands have nothing to do with diabetes. Dr. Crofton laid special stress on the fact that his patients improved on the extracts, and that with giving a full diet. He (the speaker) could not see where was the improvement considering the so-called improved patients passed more water with a greater percentage of sugar. A mere statement by

a patient that he felt better was worthless, and until Dr. Crofton could adduce definite proof of improvement in his cases he (the speaker) thought that the less said about his method of treatment the better.

PROFESSOR COLLINGWOOD said as regards Cohnheim's experiments it is possible that they were due to bacterial invasion. There is a further action of secretin which has been neglected. If pancreatic ferments are mixed with secretin these ferments are activated by the fact that secretin has come in contact with them.

DR. KIRKPATRICK said he had tried secretin in several cases, and he could not say there was any satisfactory result. He mentioned the case of one patient who continued to lose weight under secretin, but increased in weight by 5 lbs. with Dr. Crofton's extract, and no longer complained of thirst or hunger. His experience of the drug in other cases justified his continuing its use.

DR. WINTER agreed in this view.

DRS. PARSONS, NESBITT, EUSTACE, and STEVENS also spoke.

THE PRESIDENT referred to the use of codein and liquid extract of cascara sagrada. The former he regarded as more useful than any ferment in the treatment of diabetes mellitus.

DR. CROFTON said his extract differed in no way from Cohnheim's. He made his extract from pure pancreas. He did not see how this could affect the co-ferment. He referred to the improvement which his patients have had when taking this extract, and he laid emphasis on the fact that he did not pretend to cure, but to render his patients' lives more comfortable. As regards Cohnheim's theory that the malady was due to micro-organisms, this could be put out of court at once, for it was proved that microbic action was entirely absent. As to the metabolism of fat, it is no hypothesis, but an established fact. It is certain that if you inject into the body foreign protein you will get these co-ferments. There was no great anatomical change in the pancreas. In some there was an interlobular fibrosis, atrophy of its secreting epithelium, and the cell islands seemed to be diminished. It looks like a pancreas which was undergoing atrophy. As regards mental influences he did not think the improvement could be put down to that, as the patients were very sceptical about the drugs they were getting. As regards the treat-

ment by codein, he thought it very useful. It may act by blocking the messages sent to the brain asking for more sugar, or, by combining with dextrose, it in some way renders it easier for oxidation than it was before.

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#### RESECTION OF POSTERIOR ROOTS OF SPINAL NERVES.

ABBE has an article on resection of the posterior roots of the spinal nerves for the relief of pain, pain reflex, athetosis and spastic paralysis. He describes how the operation was first suggested by Dr. Dana in 1888. He gives a brief report of the five cases on which he has operated; three of these have been fully reported before, the other two are new. He has somewhat modified the original operation, now removing only the laminæ of the vertebræ on one side and dividing, not the whole of each of the dorsal roots, but only a half, or three out of the five strands composing each root. The first two cases were done for very severe spasmodic pain of the arm; in both cases the pain was intense, and various operative measures had been already tried, even to amputation. Both cases were greatly improved by the operation, but in neither case was the cure complete. The third case suffered from athetoid paralysis of the arm followed by severe and increasing neuralgia; here again various operations had been already done, ending in amputation at the shoulder, without relief. In this case also, although the operation of section of the roots caused considerable improvement, it did not bring about a complete cure. The fourth case was operated on for unbearable pain, the result of inoperable sarcoma of the axilla; the patient lived in comparative comfort for three months after the operation. The last case suffered from spastic hemiplegia of the arm accompanied by constant pain. The pain was completely relieved as was also the spasm. As might have been expected there was no change in the paralysis. He concludes as follows:—"The further extension of the operation to attempted relief in cases of violent crises of pain and locomotor ataxia, and even in wryneck spasms, suggests a widening field not yet sufficiently tested for report. The principle of cutting the links in the sensory reflex chain is anatomically and physiologically correct. Although in paralytics the motor nerve trunks may not be able to restore function in all cases, the return pain-stimulus which excites the spastic distortions are relieved."—*Medical Record*, March 4, 1911.

# SANITARY AND METEOROLOGICAL NOTES.

## VITAL STATISTICS.

*For four weeks ending Saturday, April 22, 1911.*

### IRELAND.

THE average annual death-rate represented by the deaths—exclusive of deaths of persons admitted into public institutions from without the respective districts—registered in the week ended April 22, 1911, in the Dublin Registration Area and the twenty-one principal provincial Urban Districts of Ireland was 22.0 per 1,000 of their aggregate population, which for the purposes of these returns is estimated at 1,163,596. The deaths registered in each of the four weeks ended Saturday, April 22, and during the whole of that period in the several districts, alphabetically arranged, correspond to the following annual rates per 1,000. In some cases, owing to deaths not having been registered within the week in which they occurred, the rates do not fairly represent the weekly mortality :—

Towns, &c.	Week ending				Average Rate for 4 weeks	Towns, &c.	Week ending				Average Rate for 4 weeks
	April 1	April 8	April 15	April 22			April 1	April 8	April 15	April 22	
22 Town Districts	20.7	22.4	20.3	22.0	21.3	Lisburn -	22.7	18.2	13.6	22.7	19.3
Armagh -	—	6.9	6.9	13.7	6.9	Londonderry	22.6	35.6	26.1	17.8	25.5
Ballymena	28.7	19.2	23.9	23.9	23.9	Lurgan -	22.1	13.3	8.9	17.7	15.5
Belfast -	18.1	22.5	21.1	20.2	20.5	Newry -	16.8	12.6	4.2	37.8	17.9
Clonmel -	25.6	10.3	15.4	25.6	19.2	Newtownards	17.2	17.2	28.6	28.6	22.9
Cork -	19.2	30.8	27.4	21.2	24.6	Portadown	10.3	5.2	10.3	20.7	11.6
Drogheda -	32.7	20.4	4.1	12.3	17.4	Queenstown	—	6.6	13.2	33.0	13.2
Dublin - (Reg. Area)	21.5	23.2	21.1	23.3	22.3	Sligo -	24.0	14.4	9.6	14.4	15.6
Dundalk -	—	16.0	—	27.9	11.0	Trillick -	47.6	26.4	5.3	21.1	25.1
Galway -	42.7	15.5	7.8	19.4	21.3	Waterford	23.4	11.7	13.6	31.2	20.0
Kilkenny -	39.3	19.7	44.2	19.7	30.7	Wexford -	9.3	23.3	23.3	4.7	15.2
Limerick -	31.4	17.8	17.8	28.7	23.9						

The deaths (excluding those of persons admitted into public institutions from without the respective districts) from certain epidemic diseases registered in the 22 districts during the week ended Saturday, April 22, 1911, were equal to an annual rate of 1.2 per 1,000, the rates varying from 0.0 in eighteen of the districts to 5.9 in Londonderry—the 15 deaths from all causes for that district including 4 from whooping-cough and one from diarrhœa. Among the 154 deaths from all causes for Belfast are 2 from whooping-cough and one from diphtheria, and included in the 5 deaths from all causes for Clonmel is one from diphtheria.

#### DUBLIN REGISTRATION AREA.

The Dublin Registration Area consists of the City of Dublin as extended by the Dublin Corporation Act, 1900, together with the Urban Districts of Rathmines, Pembroke, Blackrock, and Kingstown. The population of this area is 407,057, that of the City being 313,526, Rathmines 37,528, Pembroke 29,368, Blackrock 9,013, and Kingstown 17,622.

In the Dublin Registration Area the births registered during the week ended Saturday, April 22, 1911, amounted to 174—83 boys and 91 girls, and the deaths to 196—95 males and 101 females.

#### DEATHS.

Omitting the deaths (numbering 14) of persons admitted into public institutions from localities outside the Area, the annual rate of mortality was 23.3 per 1,000. During the sixteen weeks ending with Saturday, April 22, the death-rate so corrected averaged 23.3, and was 2.7 below the mean rate for the corresponding portions of the ten years 1901–1910.

The total deaths registered, numbering 196, represent an annual rate of 25.1 per 1,000. The annual death-rate for the past sixteen weeks was 24.6 per 1,000, and the average annual rate for the corresponding period of the past ten years was 27.1 per 1,000 of the mean population for all deaths registered.

Included in the total deaths from all causes were 11 deaths from measles, one death from scarlet fever, 4 deaths from diphtheria, 3 from diarrhœa and enteritis of children under 2 years of age, and 3 from influenza.

In each of the three weeks preceding, deaths from measles were 2, 1, and 7; deaths from scarlet fever were 0, 1, and 4; deaths from diphtheria were 1, 4, and 3; deaths from diarrhœa

and enteritis of children under 2 years of age were 2, 6, and 5; and deaths from influenza were 2, 2, and 0.

Of 41 deaths from tuberculous disease, 33 were caused by pulmonary tuberculosis, 2 by tubercular meningitis, 2 by abdominal tuberculosis, and 4 by disseminated tuberculosis. Deaths from all forms of tuberculosis in the three preceding weeks were 29, 39, and 24 respectively.

There were 7 deaths from broncho-pneumonia, 2 deaths from lobar pneumonia, and 7 deaths from *pneumonia* (type not distinguished).

The deaths of 7 persons were due to cancer.

Of 16 deaths from diseases of the brain and nervous system, 3 were attributed to *convulsions*, one of an infant under one month, one of a child between one year and 2 years, and one of a child aged 12 years.

Diseases of the heart and blood vessels accounted for the deaths of 15 persons. There were 26 deaths from bronchitis.

Of 6 deaths due to accident or negligence, one was caused by a fall from a horse, and 3 were by burns, one of the victims being an infant under one year of age.

There was one homicidal death.

In 2 instances the cause of death was "uncertified," there having been no medical attendant during the last illness. These cases include the death of one infant under one year old.

Fifty-four of the persons whose deaths were registered during the week were under 5 years of age (21 being infants under one year, of whom 6 were under one month old), and 47 were aged 65 years and upwards, including 33 persons aged 70 years and upwards. Among the latter were 18 aged 75 years and upwards, of whom one (a female) was stated to have been aged 93 years.

The Registrar-General points out that the names of the cause of death printed above in *italics* should be avoided whenever possible in Medical Certificates of the Cause of Death.

#### STATE OF INFECTIOUS DISEASE IN THE DUBLIN REGISTRATION AREA AND IN BELFAST.

The usual returns of the number of cases of infectious diseases notified under the "Infectious Diseases (Notification) Act, 1889," and the "Tuberculosis Prevention (Ireland) Act, 1908," as set forth in the following table, have been furnished by Sir Charles A. Cameron, C.B., M.D., Medical Superintendent Officer of Health

for the City of Dublin ; by Mr. Fawcett, Executive Sanitary Officer for Rathmines and Rathgar Urban District ; by Mr. Manly, Executive Sanitary Officer for Pembroke Urban District ; by Mr. Heron, Executive Sanitary Officer for Blackrock Urban District ; by the Executive Sanitary Officer for Kingstown Urban District ; and by Dr. Bailie, Medical Superintendent Officer of Health for the City of Belfast.

TABLE SHOWING THE NUMBER OF CASES OF INFECTIOUS DISEASES notified in the Dublin Registration Area (viz.—the City of Dublin and the Urban Districts of Rathmines and Rathgar, Pembroke, Blackrock, and Kingstown), and in the City of Belfast, during the week ended April 22, 1911, and during each of the preceding three weeks. An asterisk (\*) denotes that the disease in question is not notifiable in the District.

CITIES AND URBAN DISTRICTS	Week ending	Small-pox	Measles	Rubella, or Epidemic Rose Rash	Scarlet Fever	Typhus	Relapsing Fever	Diphtheria	Membranous Croup	Pyrexia (origin uncertain) <sup>a</sup>	Ereptic or Typhoid Fever	Erysipelas	Puerperal Fever	Whooping-cough	Cerebro-spinal Fever	Tubercular Phthisis ( <i>Phthisis</i> )	Total
City of Dublin	Apr. 1	-	•	•	6	1	-	7	-	-	12	8	-	•	-	17	51
	Apr. 8	-	•	•	16	-	-	15	-	1	10	3	-	*	-	7	52
	Apr. 15	-	•	•	9	-	-	15	-	1	10	7	-	*	-	7	49
	Apr. 22	-	•	*	5	1	-	13	-	1	6	8	-	*	-	15	49
Rathmines and Rathgar Urban District	Apr. 1	-	•	*	3	-	-	5	-	-	4	3	-	*	*	•	15
	Apr. 8	-	•	*	1	-	-	3	-	-	1	-	-	•	*	*	5
	Apr. 15	-	•	*	2	-	-	1	-	-	-	-	-	•	*	*	3
	Apr. 22	-	•	*	4	-	-	-	-	-	-	-	-	•	*	*	4
Pembroke Urban District	Apr. 1	-	7	-	1	-	-	1	-	-	-	-	-	10	-	-	19
	Apr. 8	-	16	-	-	-	-	-	-	-	-	-	-	12	-	-	28
	Apr. 15	-	3	-	-	-	-	-	-	-	1	-	-	3	-	-	7
	Apr. 22	-	21	-	1	-	-	-	-	-	-	-	-	7	-	-	29
Blackrock Urban District	Apr. 1	-	•	•	1	-	-	-	-	-	-	-	-	•	-	*	1
	Apr. 8	-	•	•	2	-	-	-	-	-	-	-	-	•	-	*	2
	Apr. 15	-	•	•	1	-	-	2	-	-	-	-	-	•	-	*	3
	Apr. 22	-	•	•	-	-	-	-	-	-	-	-	-	•	-	*	-
Kingstown Urban District	Apr. 1	-	*	*	-	-	-	1	-	-	-	-	-	•	•	-	1
	Apr. 8	-	*	*	-	-	-	-	-	-	-	-	-	•	•	-	-
	Apr. 15	-	*	*	1	-	-	-	-	-	-	2	-	*	•	-	3
	Apr. 22	-	*	*	-	-	-	-	-	-	-	-	-	•	•	-	-
City of Belfast	Apr. 1	-	•	*	9	-	-	10	-	1	2	3	-	*	-	16	41
	Apr. 8	-	•	•	9	-	-	1	-	-	2	6	-	•	-	11	29
	Apr. 15	-	•	•	11	-	-	6	-	-	4	5	-	•	-	8	34
	Apr. 22	-	•	•	8	-	-	4	-	-	1	-	-	•	-	9	22

<sup>a</sup> Continued Fever.

### CASES OF INFECTIOUS DISEASES UNDER TREATMENT IN DUBLIN HOSPITALS.

During the week ended April 22, 1911, 19 cases of measles were admitted to hospital, 22 cases were discharged, there were 4 deaths, and 61 cases remained under treatment at the close of the week.

Fifteen cases of scarlet fever were admitted to hospital, 20 were discharged, there was one death, and 104 cases remained under treatment at the close of the week, exclusive of 22 convalescents from the disease who were still under treatment at Beneavin, Glasnevin, the Convalescent Home of Cork Street Fever Hospital, Dublin. At the close of the 3 preceding weeks the cases in hospital were 118, 112, and 110, respectively.

One case of typhus was admitted to hospital during the week, and 2 cases remained under treatment at its close.

Eighteen cases of diphtheria were admitted to hospital, 19 were discharged, and there were 4 deaths. The cases in hospital, which at the close of the 3 preceding weeks numbered 69, 66, and 60, respectively, were 55 at the close of the week.

Four cases of enteric fever were admitted to hospital, 3 were discharged, there was one death, and 60 cases remained under treatment in hospital at the close of the week, the respective numbers in hospital at the close of the 3 preceding weeks being 75, 70, and 60.

In addition to the above-named diseases, 10 cases of pneumonia were admitted to hospital, 4 were discharged, and 40 cases remained under treatment at the end of the week.

#### ENGLAND AND SCOTLAND.

The mortality in the week ended Saturday, April 22 in 77 large English towns, including London (in which the rate was 15.8), was equal to an average annual death-rate of 15.4 per 1,000 persons living. The average rate for 8 principal towns of Scotland was 16.7 per 1,000, the rate for Glasgow being 16.2, and for Edinburgh 16.6.

#### INFECTIOUS DISEASE IN EDINBURGH.

The Registrar-General has been favoured by A. Maxwell Williamson, M.D., B.Sc., Medical Officer of Health for Edinburgh, with a copy of his Return of Infectious Diseases notified during the week ended April 22. From this report it appears that of a total of 51 cases notified, 16 were of phthisis, 16 of scarlet fever, 11 of diphtheria, 7 of erysipelas, and 1 of enteric fever. Among the 345 cases of infectious diseases in hospital at the close of the week were 132 cases of scarlet fever, 59 of phthisis, 55 of diphtheria, 49 of measles, 32 of whooping-cough, 6 of erysipelas, 4 of chicken-pox, 3 of enteric fever, 2 of cerebro-spinal fever, and one of puerperal fever.

## METEOROLOGY.

*Abstract of Observations made in the City of Dublin, Lat. 53° 20' N., Long. 6° 15' W., for the Month of April, 1911.*

Mean Height of Barometer, - - -	29.981 inches.
Maximum Height of Barometer (9th, at 9 a.m.),	30.503 „
Minimal Height of Barometer (19th, at 4 30 a.m.),	28.800 „
Mean Dry-bulb Temperature, - - -	47.0°.
Mean Wet-bulb Temperature, - - -	43.7°.
Mean Dew-point Temperature, - - -	40.0°.
Mean Elastic Force (Tension) of Aqueous Vapour	.251 inch.
Mean Humidity, - - -	77.1 per cent.
Highest Temperature in Shade (on 22nd), -	63.5°.
Lowest Temperature in Shade (on 4th), -	31.8°.
Lowest Temperature on Grass (Radiation) (4th),	29.0°.
Mean Amount of Cloud, - - -	59.3 per cent.
Rainfall (on 15 days), - - -	1.408 inches.
Greatest Daily Rainfall (on 18th), - - -	.802 inch.
General Directions of Wind, - - -	N.E., S.W., W.

*Remarks.*

April, 1911, was remarkable for its wintry beginning and genial close. From the 1st to the 14th an anticyclone lay off the N.W. or W. coasts of the British Isles, whereas the barometer was low over the Iberian Peninsula and in the Mediterranean Basin, as well as in the Baltic. This distribution of atmospheric pressure caused cold winds of considerable strength from N., N.E., and E. to pass over North-western Europe. Squalls of snow and hail were frequent in many parts of Great Britain and the east of Ireland during the first week, and sharp night frosts occurred in the centre of Ireland, the successive minima at Birr Castle from the 2nd being 30°, 23°, 25°, 25°, 28°, 29° and 33°. On the mornings of the 12th and 13th also a minimum of 27° was reported from that station. At Kew Observatory the maximum on the 5th was 34°, and at Worthing the thermometer on that day did not rise above 32°. In Dublin the same day was signalled by squalls from N.E. and frequent showers of snow, hail and graupel. With the passing southward of the high pressure system on the 14th and the simultaneous appearance of a large area of low pressure in

the Icelandic region, westerly and south-westerly winds began to pass over the British Isles, and the remainder of the month was mild, showery and squally in Ireland. In the London district no rain fell from the 11th to the 25th; on the other hand, in the week ended the 22nd, the rainfall in Dublin reached .972 inch on 5 days. Owing to the genial warmth of the latter half of the month its mean temperature was slightly above average, and this notwithstanding the fact that in Dublin the mean temperature of the first week (2nd–8th) was no higher than  $40.9^{\circ}$ . Like April, 1910, this may be described as a planet month. Jupiter was a conspicuous object in the south-eastern sky in the early hours of night, while Venus was resplendent as an evening star in the west; and, lastly, Mercury was visible in the north-western sky on several successive evenings in the middle of the month.

In Dublin the arithmetical mean temperature ( $48.0^{\circ}$ ) was  $0.4^{\circ}$  above the average ( $47.6^{\circ}$ ). The mean dry-bulb readings at 9 a.m. and 9 p.m. were  $47.0^{\circ}$ . In the forty-seven years ending with 1911, April was coldest in 1879 (the cold year) (M. T. =  $44.5^{\circ}$ ), and warmest in 1893 (M. T. =  $51.4^{\circ}$ ). In 1910 the M. T. was  $45.9^{\circ}$ .

The mean height of the barometer was 29.981 inches, or 0.131 inch above the average value for April—namely, 29.850 inches. The mercury rose to 30.503 inches at 9 a.m. of the 9th, and fell to 28.800 inches about 4.30 a.m. of the 19th. The observed range of atmospheric pressure was, therefore, 1.703 inches.

The mean temperature deduced from daily readings of the dry-bulb thermometer at 9 a.m. and 9 p.m. was  $47.0^{\circ}$ , or  $4.7^{\circ}$  above the value for March, 1911. Using the formula, *Mean Temp.* = *Min.* + (*Max.* — *Min.*  $\times .476$ ), the value is  $47.7^{\circ}$ , or  $0.4^{\circ}$  above the average mean temperature for April, calculated in the same way, in the thirty-five years, 1871–1905, inclusive ( $47.3^{\circ}$ ). The arithmetical mean of the maximal and minimal readings was  $48.0^{\circ}$ , compared with a thirty-five years' (1871–1905, inclusive) average of  $47.6^{\circ}$ . On the 22nd the thermometer in the screen rose to  $63.5^{\circ}$ —wind, S.W.; on the 4th the temperature fell to  $31.8^{\circ}$ —wind, W. The minimum on the grass was  $29.0^{\circ}$  on the 4th.

The rainfall was 1.408 inches, distributed over 15 days. The average rainfall for April in the thirty-five years, 1871–1905, inclusive, was 1.940 inches, and the average number of rainy days was 16. The rainfall, therefore, and also the rain-days were below the average. In 1877 the rainfall in April was very large—

4.707 inches on 21 days. On the other hand, in 1873, only .498 inch was measured on 8 days. In 1910, 2.197 inches fell on 19 days.

High winds were noted on 14 days, and reached the force of a gale on the 18th and 19th. Hail fell on the 4th, 5th, and 20th; snow on the 4th and 5th. The temperature rose above 60° in the screen on 5 days. It failed to reach 50° on 8 days. It once fell to 32° in the screen, and on 3 nights it fell to or below 32° on the grass. The mean lowest temperature on the grass was 40.2°, compared with 36.0° in 1910, 39.0° in 1909, 35.4° in 1908, 36.7° in 1907, 33.6° in 1906, 37.3° in 1905, 39.1° in 1904, 37.0° in 1903, 36.8° in 1902, 37.3° in 1901, and only 31.6° in 1887.

The rainfall in Dublin during the four months ending April 30th amounted to 4.700 inches on 59 days, compared with an average of 8.338 inches on 69 days in the first decade of the twentieth century, and a thirty-five years' (1871-1905) average of 8.070 inches on 66 days.

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Mr. C. D. Clark reports that at the Normal Climatological Station in Trinity College, Dublin, the mean height of the barometer was 29.985 inches, the range of atmospheric pressure being from 30.511 inches at 9 a.m. of the 9th to 28.866 inches at 9 a.m. of the 19th. The mean value of the readings of the dry-bulb thermometer at 9 a.m. and 9 p.m. was 47.2°. The arithmetical mean of the daily maximal and minimal temperatures was 47.8°. The screened thermometers rose to 63.9° on the 22nd and fell to 33.2° (?) on the 4th. On the 8th the grass minimum was 25.5°. Rain fell on 14 days to the amount of 1.828 inches, the greatest fall in 24 hours being .750 inch on the 18th. The duration of bright sunshine, according to the Campbell-Stokes recorder, was 139.3 hours, of which 10.9 hours occurred on the 26th and 10.3 hours on the 13th. The mean daily sunshine was 4.6 hours. The mean temperature of the soil at 9 a.m. at a depth of one foot was 46.8°; at a depth of 4 feet it was 46.0°.

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At 21 Leeson Park, Dublin, Dr. Christopher Joynt, F.R.C.P.I., measured 1.470 inches on 14 days, the largest amount recorded in 24 hours being .880 inch on the 18th.

Mr. T. Bateman, of The Green, Malahide, Co. Dublin, returns the rainfall at 1.395 inches on 14 days. The greatest fall in 24 hours was .31 inch on the 18th. The mean shade temperature

was  $45.3^{\circ}$ , the extremes being—highest,  $63^{\circ}$  on the 22nd; lowest,  $29^{\circ}$  on the 11th.

Captain Edward Taylor, D.L., gives the rainfall at Ardgillan, Balbriggan, Co. Dublin, as 1.53 inches on 15 days, the rainfall being 0.48 inch below and the rain-days 1 below the average. The heaviest fall in 24 hours was .40 inch on the 26th. The rainfall from January 1st equals 6.77 inches on 59 days—that is, 1.54 inches and 7 days short of the average. The thermometers in the screen rose to  $61.7^{\circ}$  on the 21st, having fallen to  $33.1^{\circ}$  on the 12th.

Dr. Arthur S. Goff reports that the rainfall at Lynton, Dundrum, Co. Dublin, was 2.19 inches on 16 days. The greatest daily rainfall was 1.13 inches on the 18th. The mean shade temperature was  $47.8^{\circ}$ , compared with a ten years' (1901–1910) average of  $46.6^{\circ}$ . The thermometric range was from  $32^{\circ}$  on the 4th to  $63^{\circ}$  on the 22nd. Hail showers fell on the 5th and 20th. Snow on the 5th.

Mr. George B. Edmondson recorded a rainfall of 1.92 inches on 16 days at Manor Mill Lodge, Dundrum, Co. Dublin. The greatest fall in 24 hours was 1.17 inches on the 18th. The thermometer in the screen ranged between  $65^{\circ}$  on the 16th and  $32^{\circ}$  on the 4th. The mean temperature of the month was  $48.0^{\circ}$ .

At Cheeverstown Convalescent Home for Little Children, Clondalkin, Co. Dublin, Miss C. Violet Kirkpatrick recorded 2.02 inches of rain on 18 days. The largest fall in 24 hours was .41 on the 18th.

At the Ordnance Survey Office, Phoenix Park, Dublin, rain fell on 19 days to the amount of 1.268 inches, the greatest measurement in 24 hours being .275 inches on the 25th. The total amount of bright sunshine was 160.0 hours, of which 12.4 hours fell on the 13th, the brightest day of the month. The mean maximum temperature was  $53.2^{\circ}$ , the mean minimum was  $39.0^{\circ}$ , and the mean temperature of the month was  $46.1$ .

Dr. John H. Armstrong reports that at Coolagad, Greystones, Co. Wicklow, the rainfall amounted to 2.05 inches on 14 days. The heaviest fall in 24 hours was 1.02 inches on the 18th. The total rainfall in 1911, up to April 30th, was 6.07 inches on 56 days.

Dr. W. S. Ross recorded 1.45 inches of rain on 13 days at Clonsilla, Greystones, the largest measurement in 24 hours being .69 inch on the 18th. The thermometer rose to  $63^{\circ}$  on the 22nd, having fallen to  $34^{\circ}$  on the 6th.

At Druid Lodge, Killiney, Co. Dublin, Mrs. Olive F. Symes states that 1.34 inches of rain fell on 10 days. The maximal fall in 24 hours was .92 inch on the 18th.

Dr. John T. Crowe, Resident Medical Officer at the Royal National Hospital for Consumption, Newcastle, Co. Wicklow, reports that the rainfall at that place was 1.86 inches on 14 days, the maximal fall in 24 hours being .67 inch on the 18th. The mean temperature of the air was  $46.4^{\circ}$ , the thermometer in the screen having risen to  $64.0^{\circ}$  on the 24th and fallen to  $32.8^{\circ}$  on the 5th. The mean maximal temperature was  $52.3^{\circ}$ , the mean minimum being  $40.5^{\circ}$ . There was a slight fall of snow on the 4th.

In Cork, according to Mr. W. Miller, the rainfall amounted to 2.13 inches on 14 days, .40 inch being measured on the 26th. Since January 1, 1911, 8.07 inches of rain have fallen in Cork on 60 days. The rainfall of the four months was 4.60 inches in defect and the rain-days were 7 below the average. The mean temperature was  $44.5^{\circ}$ , or 3.3 below the average of 28 years.

At the Rectory, Dunmanway, Co. Cork, the Rev. Arthur Wilson, M.A., measured 5.03 inches of rain on 15 days. The heaviest falls in 24 hours were .87 inch on the 20th, .70 inch on the 24th, and .64 inch on the 26th. Only .13 inch fell on 3 days up to the 17th, the dry weather accompanying cold E. and N.E. winds. Severe frost occurred on the night of the 11th. The rainfall at Dunmanway in the four months ended April 30 amounted to 18.95 inches on 72 days.

Mr. W. Holbrow reports that the rainfall at Derreen, Kenmare, Co. Kerry, amounted to 6.54 inches on 13 days, the largest measurement being 1.63 inches on the 17th. The weather was very fine at Derreen from the 1st to the 17th, but rather cold, with sharp frosts on the 4th, 7th, 8th, 10th, 11th, and 12th. There was a sea-fog on the 2nd.

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#### THE NATIONAL UNIVERSITY OF IRELAND.

THE Senate met on Friday, May 12th, 1911, His Grace the Most Rev. William J. Walsh, D.D., Archbishop of Dublin, Chancellor of the University, in the chair. The reports of the Examiners on the recent Spring Medical Examinations were considered, and awards made in connection therewith. The following regulation was adopted:—"That candidates for Matriculation 1911-1912 be permitted to take Greek as one of the subjects of Group 2 of the Matriculation Syllabus."

## PERISCOPE.

### ARTIFICIAL MUSCLES IN THE EARLY TREATMENT OF INFANTILE PARALYSIS.

MEISENBACH, in the *Medical Record*, March 11, 1911, writes an article with this heading. He makes use of strips of rubber dam attached by plaster at either end to replace the partially or completely paralysed muscles. The method, he says, is chiefly applicable to the ankle, the knee, the wrist and shoulder joints. One end of the rubber is applied over a joint corresponding approximately to the origin of the muscle and the other at the insertion of the muscle. His conclusions are that:—(1) By the use of artificial muscles the lost power may be supplied temporarily until the paralysed muscles have recovered. (2) The force exerted by them simulates the normal better than any other method. (3) Contractures of opposing groups may be prevented. (4) The rubber over the affected muscles causes a local stimulation, which is noted by active hyperæmia and perspiration of the skin beneath the artificial muscle. (5) Its use does not immobilise the joint, nor does it interfere with other prescribed treatment—namely, passive motion, massage, or electrical contractions. (6) Its efficiency is continuous, and its simplicity does not interfere with the clothing or bathing. It is not intended to be used in advanced cases after contraction has taken place.

### MYXŒDEMATOUS COMA.

M. HERTOEGHE, corresponding member of the Royal Academy of Medicine of Belgium, read a paper on the above subject at the meeting of the Academy on February 25, 1911 (*Bulletin de l'Académie royale de médecine de Belgique*). Passing by the more familiar disturbances due to thyroid insufficiency, the author draws attention to certain disorders of the nervous system caused by it, which are but little known and are yet of great importance. The central nervous system, owing to the incompressibility of its elements, at an early stage suffers from the recoil of the myxœdematous infiltration, no matter how slight it may be. In the first place, we observe attacks of migraine of a special kind, more intense in the morning after the coolness and inanition

of the night, disappearing in the daytime, thanks to the warming effect of food and muscular action, often complicated with attacks of occipital neuralgia. At a still more advanced stage of thyroid-improvement, migraine gives place to persistent headache, a heavy feel in the frontal region, and a gradually developing intellectual torpor, speech becomes slow and halting, and there is an incessant buzzing in the ears. Still later, psychical indifference merges in a condition of perpetual drowsiness. Sleep by night is profound, but neither refreshing nor restorative. It is disturbed by nightmare and terrifying hallucinations. At other times, the cerebral infiltration provokes true epileptic crises. And, lastly, the cerebral œdema induces coma comparable to that of diabetes and of Bright's disease. For the latter malady, myxœdema of this cerebral type is often mistaken. To sum up: There exists a coma of dysthyroidean origin. It is due to infiltration of the nervous centres. Its gravity is in proportion to the general athyrea, and it may end in death. From a practical standpoint, when we find ourselves face to face with a coma which is not diabetic, not nephritic nor traumatic nor hæmorrhagic, we should think of a possible thyroid failure and look for other signs of myxœdema. The treatment of myxœdematous coma should be causal—to introduce into the organism thyroïdin by the stomach, by the rectum, or by hypodermic injection.

#### LITERARY INTELLIGENCE.

MESSRS. P. S. KING & SON, of London, will shortly issue "Medical Revolution: A Plea for National Prevention on the Basis of a Natural Interpretation of Disease." The author, a retired general practitioner, contends that the root principle of the cellular pathology—"every disease is rooted in an organ"—is false; that, therefore, most diseases at present so-called, are not diseases but merely symptoms; and that no true diagnosis has been made until the primeval and contributory causes of the symptoms have been traced. This leads, of course, to the advocacy of preventive as against merely curative measures. Now that legislation for the improvement of the National Health is imminent, and a great Conference on Destitution is about to meet, this root-and-branch reformer of our medical service will merit the attention of all who have the national well-being at heart.

# INDEX

## TO THE

### ONE HUNDRED AND THIRTY-FIRST VOLUME.

---

- Abbe, resection of posterior roots of spinal nerves, 468.
- Abdominal aneurysm, operation for, W. I. de C. Wheeler, 143.
- Acromegalic skeleton, &c., Professor A. C. Geddes, 383.
- Adam, Dr. C., handbook of treatment for diseases of the eye, *Rev.*, 451.
- Albertijn, R. A., diabetes and pancreatic secretion, 347.
- Albulactin, 160.
- Albutt, Sir C., a system of medicine, *Rev.*, 208.
- American Proctologic Society, 398.
- Amyotrophic lateral sclerosis, Dr. Boxwell, *Rev.*, 60.
- Anæmia, Professor P. Ehrlich and Dr. A. Lazarus, Part I., Vol. I., trans. by H. W. Armit, *Rev.*, 38.
- Archives of the Middlesex Hospital, Vol. XIX., ed. by L. Barlow, *Rev.*, 129.
- Arderne, John, treatises of fistula in ano, hæmorrhoids, and clysters; ed. by J. D'Arcy Power, *Rev.*, 289.
- Armith, H. W., anæmia, Part I., Vol. I., *Rev.*, 38.
- Ash, Ed., mind and health, *Rev.*, 43.
- A system of syphilis, D'Arcy Power, ed. of, *Rev.*, 126.
- Athetosis, Dr. O'Carroll on, 461.
- Atthill, Dr. Lombe, the late, 49.
- Australasian Medical Congress, *Rev.*, 62.
- Baby's world, the, ed. by J. J. MacGregor, Vol. II., No. 7, *Rev.*, 32.
- Bacteriology, a manual of, R. Muir, *Rev.*, 370.
- Barlow, W. S. L., ed. of Archives of the Middlesex Hospital, Vol. XIX., *Rev.*, 129.
- Barrett, Dr. Boyd, congenital fistulæ, 225, 179; rheumatism in childhood and adult life, 462.
- Beneficent wolves, 269.
- Berkeley, C. A., text-book of gynæcological surgery, *Rev.*, 367.
- Berkeley, C., gynæcology for nurses and gynæcological nursing, *Rev.*, 441.
- Bidwell, L. A., handbook of intestinal surgery, *Rev.*, 132.
- Blair, C., errors of refraction and their treatment, *Rev.*, 458.
- Boxwell, Dr., amyotrophic lateral sclerosis, 60.
- Boyle medal of the Royal Dublin Society, 398.
- Bresler, J., the treatment of syphilis by the Ehrlich-Hata remedy, *Rev.*, 201.
- Brickdale-Fortescue, J. M., a practical guide to the newer remedies, *Rev.*, 279.
- Brown, L., physiological principles in treatment, *Rev.*, 36.
- Bruck, A., the diseases of the nose, mouth, pharynx and larynx, *Rev.*, 30.
- Burgess, J., a case of thrombosis of the superior mesenteric vein, 114, 145.
- Burrage, W. L., gynæcological diagnosis, *Rev.*, 248.
- Cancer problem, fringes of, W. S. Handley, 212.
- Cancer problem, the, C. E. Green, *Rev.*, 362.
- Carcinoma of Fallopiian tube, Dr. E. Hastings Tweedy, 51.
- Cardiac failure, alcohol and oxygen inhalations in, Professor Collingwood, 385.
- Carnrick's liquid peptonoids with creosote, 319.
- Carruthers, T., urine examination made easy, *Rev.*, 442.
- Case-Books, some failures and successes from my, by Spencer Sheill, 401.

- Cerebellar tumour, a case of, Dr. G. Peacocke, *Rev.*, 294.
- Cerebral tumour, a case of, Dr. Parsons, 463.
- Cerebral tumour, two cases of, Dr. T. G. Moorhead, 292.
- Charles, A., chronic urethritis, treatment of, *Rev.*, 304.
- Cheyne-Stokes' breathing, J. Little, 321.
- Children, A. Märchen, H. Salus, *Rev.*, 460.
- Chronic urethritis, treatment of, by use of ointments in the urethra, A. Charles, *Rev.*, 304.
- Clarke, J. F., influenza, 184.
- Clayton-Greene, W. H., Pye's elementary bandaging and surgical dressing, *Rev.*, 135.
- Clinical experiences, some recent, Sir John Moore, 13, 60.
- Clinical pathology in practice, with short account of vaccine therapy, T. J. Horder, *Rev.*, 285.
- Cœliac axis aneurysm treated by operation, Dr. Lumsden, 142.
- Coleman, Dr., case of locomotor ataxy, 61.
- Collingwood, Professor, cardiac failure, alcohol and oxygen inhalations in, 385.
- Colyer, J. F., dental surgery and pathology, *Rev.*, 276.
- Congenital fistula, B. Barrett, 225, 179.
- Continental experiences, Dr. Jellett, 53.
- Crandon, L. R. G., surgical after-treatment, *Rev.*, 195.
- Crofton, W. M., the ætiology and treatment of diabetes mellitus, 420, 466.
- Da Costa, J. C., modern surgery, general and operative, *Rev.*, 134.
- Dawn of the fourth era in surgery. R. T. Morris, *Rev.*, 34.
- Dempsey, Dr., case of locomotor ataxy, 61.
- Dental practice, 80.
- Dental surgery and pathology, J. F. Colyer, *Rev.*, 276.
- Dermatology, an introduction to, Norman Walker, *Rev.*, 440.
- Despard, L. L., text-book of massage, *Rev.*, 210.
- Diabetes and pancreatic secretion, R. A. Albertijn, 347.
- Diabetes, the ætiology and treatment of diabetes mellitus, W. M. Crofton, 420, 466.
- Diagnostic methods of examination, a treatise on, Professor H. Sahli, *Rev.*, 452.
- Dickie, William, trans. of urgent surgery, *Rev.*, 207.
- Diseases of Children, J. F. Goodhart, ed. by G. F. Still, *Rev.*, 124.
- Diseases of the eye, a handbook of treatment for, Dr. C. Adam, *Rev.*, 451.
- Diseases of the joints and spine, H. Marsh, *Rev.*, 45.
- Diseases of the nose, mouth, pharynx and larynx, Dr. A. Bruck, ed. and trans. by F. W. Forbes Ross, *Rev.*, 30.
- Diseases of the skin, treatise of, H. W. Stelwagon, *Rev.*, 272.
- Diseases of women, manual of, W. E. Fothergill, *Rev.*, 196.
- Dispensing made easy, W. G. Sutherland, *Rev.*, 199.
- Doctor's dilemma, getting married, and the showing up of Blanco Posnet, Bernard Shaw, *Rev.*, 446.
- Dublin Hospitals' Tuberculosis Committee, 78, 397.
- Dublin University Calendar for year 1910-1911, Vol. II., *Rev.*, 273.
- Dyspepsia, its varieties and treatment, W. S. Fenwick, *Rev.*, 130.
- Ear—the ear and its diseases, A. A. Gray, *Rev.*, 357.
- Eclampsia, a case of Cæsarean section for, Dr. Katherine M. N. Maguire, 377.
- Eclampsia, the treatment of, Sir Wm. J. Smyly, 377.
- Eder, Dr., trans. of the treatment of syphilis by the Ehrlich-Hata remedy, *Rev.*, 201.
- Ehrlich, Professor P., anæmia, *Rev.*, 38 ; Part I., Vol. I.
- Epidemic pneumonia, A. J. Powell, 170.
- Epinine, 319.
- Febra, La L. T., Transactions of the American Pediatric Society, *Rev.*, 197.
- Feeble-minded, the, E. B. Sherlock, *Rev.*, 443.
- Fenwick, W. S., dyspepsia, its varieties and treatment, *Rev.*, 130.
- Fishberg, M., the Jews, a study of race and environment, *Rev.*, 449.
- Fistula in ano, hemorrhoids, and clysters, treatises of, John<sup>2</sup> Arderne, ed. by D'Arcy Power, *Rev.*, 289.

- Fein, J., hints for the general practitioner in rhinology and laryngology, trans. by B. Horgan, *Rev.*, 34.
- Food and feeding in health and disease, C. Watson, *Rev.*, 271.
- Fordyce, D., hygiene of infancy and childhood, *Rev.*, 42.
- Fothergill, W. E., manual of diseases of women, *Rev.*, 196.
- Fothergill, W. E., golden rules of obstetric practice, *Rev.*, 442.
- French, H., ed. of Guy's Hospital Reports, Vol. LXIV., *Rev.* 439.
- Geddes, Professor A., acromegalic skeleton, 383.
- Genito-urinary organs, surgery of, J. W. S. Gouley, *Rev.*, 459.
- Glaucoma, an enquiry into the physiology and pathology of the intra-ocular pressure, T. Henderson, *Rev.*, 358.
- Gleason, E. B., a manual of diseases of the nose, throat and ear, *Rev.*, 139.
- Golden rules of ophthalmic practice, G. Hartridge, *Rev.*, 361.
- Golden rules of ophthalmic refraction, E. E. Maddox, *Rev.*, 361.
- Goodhart, J. F., diseases of children, ed. by G. F. Still, *Rev.*, 124.
- Gould, G. M., the practitioner's medical dictionary, *Rev.*, 288.
- Gouley, J. W. S., surgery of the genito-urinary organs, *Rev.*, 459.
- Gray, A. A., the ear and its diseases, *Rev.*, 357.
- Green, C. E., the cancer problem, *Rev.*, 362.
- Greenwood, M., the physiology of the special senses, *Rev.*, 36.
- Guy's Hospital Reports, Vol. LXIV., ed. by F. J. Stewards and H. French, *Rev.*, 439.
- Gynæcological diagnosis, W. T. Burrage, *Rev.*, 248.
- Gynæcological surgery, a text-book of, C. Berkeley, *Rev.*, 367.
- Gynæcology for nurses and gynæcological nursing, C. Berkeley, *Rev.*, 441.
- Haas, P., laboratory notes on organic chemistry for medical students, *Rev.*, 205.
- Hall, M'Ewan, man's redemption of man, *Rev.*, 459.
- Handley, W. S., fringes of the cancer problem, 212.
- Hartridge, G., golden rules of ophthalmic practice, *Rev.*, 361.
- Hardwicke, W. W., sight-testing made easy, *Rev.*, 448.
- Haughton, W. S., two unusual gall-bladder cases, 221.
- Hayes, Dr., tumour of the pituitary body, 296.
- Hay fever and paroxysmal sneezing, E. S. Young, *Rev.*, 204.
- Henderson, T., Glaucoma; an enquiry into the physiology and pathology of the intra-ocular pressure, *Rev.*, 358.
- Herschell, G., the non-surgical treatment of duodenal ulcer, *Rev.*, 286.
- Hertoghe, M., myxædematous coma, 479.
- Hinsdale, G., hydrotherapy, *Rev.*, 35.
- Hints for the general practitioner in rhinology and laryngology, J. Fein, trans. by B. Horgan, *Rev.*, 34.
- Horgan, J. B., trans. of hints for the general practitioner in rhinology and laryngology, by J. Flin, *Rev.*, 34.
- Horder, T. J., clinical pathology in practice with short account of vaccine therapy, *Rev.*, 285.
- How to prevent anaphylaxis, 318.
- Hutchinson, J., a manual of operative surgery, *Rev.*, 200.
- Hydrotherapy, G. Hinsdale, *Rev.*, 35.
- Hygiene of infancy and childhood, A. D. Fordyce, *Rev.*, 42.
- Illustrated guide to the Museum of the Royal College of Surgeons, England, A. Keith, *Rev.*, 39.
- India, a trip to, during the plague season, Major R. W. H. Jackson, 101.
- Influenza, J. F. Clarke, 184.
- Insanity, E. E. Younger, *Rev.*, 46.
- International Congress (Third) of Laryngology and Rhinology, Berlin, 1911, 238.
- International Exhibition, Antwerp, 1911, 228.
- Intestinal surgery, a handbook of, L. Bidwell, *Rev.*, 132.
- Intestinal toxæmia in infants, R. Vincent, *Rev.*, 270.
- Intramural myoma, Dr. Jellett, 50.
- Introduction to practical organic chemistry, A. M. Kellas, *Rev.*, 205.
- Irish Medical Schools and Graduates' Association, 317.
- Irish Review, March 11, *Rev.*, 275.
- Jackson, Major R. W. H., a trip to India during the plague season, 101.

- Jellett, Dr., intramural myoma, myomatous uterus associated with pregnancy, 50; some Continental experiences, 53.
- Jews, the, a study of race and environments, Maurice Fishberg, *Rev.*, 449.
- Johnson, A. B., surgical diagnosis, *Rev.*, 133.
- Jordan, Ed., a text-book of general bacteriology, *Rev.*, 123.
- Journalistic venture (or adventure), 146
- Keibel, F., ed. of manual of human embryology, *Rev.*, 140.
- Keith, A., illustrated guide to the Museum of the Royal College of Surgeons, England, *Rev.*, 39.
- Kellas, A. M., a manual of practical inorganic chemistry, *Rev.*, 361.
- Kellas, A. M., introduction to practical organic chemistry, *Rev.*, 205.
- Kenwood, H. R., public health laboratory work, *Rev.*, 274.
- Kidd, F., urinary surgery, *Rev.*, 278.
- Knox Blake, military sanitation and hygiene, *Rev.*, 453.
- Krause, F., surgery of the brain and spinal cord, trans. by H. Haubold, *Rev.*, 136.
- Laboratory notes on organic chemistry for medical students, P. Haas, *Rev.*, 205.
- Landmarks and surface markings of the human body, L. B. Rawling, *Rev.*, 372.
- Laryngeal stricture, treatment of, Mr. R. Woods, 300.
- Lazarus, A., anæmia, Part I., Vol. 1., *Rev.*, 38.
- Lea, A. W. W., puerperal infection, *Rev.*, 137.
- Léjars, F., urgent surgery, *Rev.*, 207.
- Leroy, D. R., massage plastique dans les dermatoses de la face, *Rev.*, 32.
- Ligature of the internal jugular vein, Mr. R. Woods, 300.
- Literary intelligence, 121, 396, 480.
- Literary note, 399.
- Little, Dr. James, Cheyne-Stokes' breathing, 321.
- Locomotor ataxy, three cases of, Drs. O'Carroll, Coleman and Dempsey, 61.
- Lumsden, Dr., celiac axis aneurysm, 142.
- MacGregor, J. J., ed. of the baby's world, *Rev.*, 32, Vol. II., No. 7.
- Maddox, E. E., golden rules of refraction, *Rev.*, 361.
- Maguire, H. M. N., a case of Cæsarean section for eclampsia, 377.
- Mall, F., ed. of manual of human embryology, *Rev.*, 140.
- Man's redemption of man, M'Ewan Hall, *Rev.*, 459.
- Manual of diseases of the nose, throat and ear, E. B. Gleason, *Rev.*, 139.
- Manual of human embryology, ed. by F. Keibel and F. Mall, *Rev.*, 140.
- Manual of medicine, T. K. Munro, *Rev.*, 287.
- Manual of physiology, G. N. Stewart, *Rev.*, 41.
- Manual of practical inorganic chemistry, A. M. Kellas, *Rev.*, 361.
- Marsh, H., diseases of the joints and spine, *Rev.*, 45.
- Martindale, H., Salvarsan or 606, its chemistry, pharmacy and therapeutics, *Rev.*, 202.
- Massage plastique dans les dermatoses de la face, D. R. Leroy, *Rev.*, 32.
- Materia medicine and therapeutics, R. Ghosh, ed. by J. T. Calvert, *Rev.*, 202.
- Mears, J. E., the problem of race betterment, *Rev.*, 204.
- Medical diagnosis, W. M. Stevens, *Rev.*, 363.
- Medical education, some considerations of, S. Sprigge, *Rev.*, 283.
- Medical guide through health-resorts, of Germany and other European countries, ed. by H. Morré, *Rev.*, 372.
- Medical inspection of schools and school children, J. B. Story, 241, 305.
- Medicine, history of, Dr. Max Neuberg, trans. by E. Playfair, *Rev.*, 455.
- Medicine, the XVII. International Congress of, 386.
- Meisenbach, artificial muscles in the early treatment of infantile paralysis, 479.
- Merek's Index III. auflage, abgeschlossen Ende mai, 1910, Darmstadt, Eduard Roether, Juni, 1910, 458.
- Mind and health, the mental factor and suggestion in treatment, E. Ash, *Rev.*, 43.
- Moore, Sir John, sanitary and metecrological notes, 63, 147, 229, 307, 387, 392, 469.
- Moore, Sir John, some recent clinical experiences (second series), 13, 60.

- Moorhead, T. Gillman, myasthenia gravis, notes on a case of, 161, 462.
- Moorhead, T. Gillman, two cases of cerebral tumour, 292.
- Morré, H., ed. of a medical guide through health resorts, of Germany and other European countries, *Rev.*, 372.
- Morris, R. T., dawn of the fourth era in surgery, *Rev.*, 34.
- Motor road maps, 192.
- Muir, R., a manual of bacteriology, *Rev.*, 370.
- Munro, T. K., manual of medicine, *Rev.*, 287.
- Murphy, K., ed. of a system of syphilis, *Rev.*, 126.
- Myasthenia gravis, notes on a case of, T. Gillman Moorhead, 161, 462.
- Myles, C. W. Chester, tetany, with an illustrative case, 328.
- Myomatous uterus associated with pregnancy, Dr. Jellett, 50.
- Myxœdematous coma, M. Hertoghe, 479.
- National University of Ireland, 478.
- Nisbet's Medical Directory, 1911, *Rev.*, 209.
- Neuberger, Dr. Max, history of medicine, *Rev.*, 455.
- New preparations and scientific inventions, 80, 160, 240, 319, 400.
- Non-surgical treatment of duodenal ulcer, G. Herschell, *Rev.*, 286.
- Note on the diagnostic value of Luy's segregator, R. A. Stoney, 253, 303.
- Obstetric practice, golden rules of, W. E. Fothergill, *Rev.*, 442.
- O'Carroll, a case of locomotor ataxy, 61.
- O'Carroll, Dr., athetosis, 461.
- Ophthalmic literature, 316.
- Osler, W., the treatment of disease, *Rev.*, 31.
- Paralysis, infantile, artificial muscles in the early treatment of, Meisenbach, 479.
- Paratyphoid fever, Dr. Peacocke, 465.
- Parsons, Dr., a case of cerebral tumour, 463.
- Peacocke, Dr. G., a case of cerebellar tumour, *Rev.*, 294.
- Peacocke, Dr., paratyphoid fever, 465.
- Pearson C. Yelverton, modern surgical technique in its relation to operations and wound treatment, *Rev.*, 438.
- Pembrey, M. S., practical physiology, ed. of, *Rev.*, 193.
- Percival, A. S., the prescribing of spectacles, *Rev.*, 371.
- Periscope, 62, 121, 146, 158, 192, 269, 316, 386, 396, 400, 479.
- Physical examination and diagnostic anatomy, C. B. Slade, *Rev.*, 198.
- Physiological principles in treatment, L. Brown, *Rev.*, 36.
- Physiology, a manual of, G. N. Stewart, *Rev.*, 41.
- Physiology of the special senses, M. Greenwood, jun., *Rev.*, 36.
- Pituitary body, tumour of, Dr. Hayes, *Rev.*, 296.
- Playfair, E., translator of history of medicine, by Dr. M. Neuberger, *Rev.*, 455.
- Powell, A. T., epidemic pneumonia, 170.
- Power D'Arcy, ed. of treatises of fistula in ano hæmorrhoids and clysters, by J. Arderne, *Rev.*, 289.
- Practical guide to the newer remedies, T. M. Fortescue-Brickdale, *Rev.*, 279.
- Practical physiology, ed. by M. S. Pembrey, *Rev.*, 193.
- Practitioner's medical dictionary, G. M. Gould, *Rev.*, 288.
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- Problem of race betterment, E. Mears, *Rev.*, 204.
- Public health laboratory work, H. R. Kenwood, *Rev.*, 274.
- Pubiotomy, a series of cases illustrating the operation of, Dr. H. Tweedy, 374.
- Puerperal infection, A. W. Lea, *Rev.*, 137.
- Pye's elementary bandaging and surgical dressing, revised and rewritten by W. H. Clayton-Greene, and by V. Z. Cope, *Rev.*, 135.
- Quain's elements of anatomy in four volumes, Vol. III., neurology, Professors E. A. Schäfer and J. Symington, Part II., *Rev.*, 356.
- Queen's University of Belfast, 399.
- Rawling, L. Bathe, landmarks and surface markings of the human body, *Rev.*, 372.

- Recent works on organic chemistry, P. Haas, *Rev.*, 205.
- Refraction and their treatment, errors of, by C. Blair, *Rev.*, 458.
- Renal tuberculosis, the diagnosis of, C. P. Smyly, 260.
- Rheumatism in childhood and adult life, Dr. Boyd Barrett, 462.
- Rolleston, H. D., a system of medicine, *Rev.*, 208.
- Ross, F. W. Forbes, ed. and trans. of diseases of the nose, mouth, pharynx and larynx, by Dr. A. Bruck, *Rev.*, 30.
- Royal Academy of Medicine in Ireland, 49, 142, 212, 292, 374, 461.
- Royal Sanitary Institute, 158.
- Sahli, Professor H., a treatise on diagnostic methods of examination, *Rev.*, 452.
- Salus, H., children. A Märchen, *Rev.*, 460.
- Salvarsan or 606, its chemistry, pharmacy and therapeutics, H. Martindale and W. Westcott, *Rev.*, 202.
- Sanitary and meteorological notes, Sir John Moore, 63, 147, 229, 307, 387, 392, 469.
- Sanitation and hygiene, military, E. Blake-Knox, *Rev.*, 453.
- Savill, T. P., a prescriber's companion, *Rev.*, 33.
- Schäfer, Professor E. A., Quain's elements of anatomy in four volumes, Vol. III., neurology, Part II., *Rev.*, 356.
- Scopolamine-morphine anæsthesia in labour, Dr. B. H. Solomons, 54.
- Shaw, Bernard, the doctor's dilemma, *Rev.*, 446.
- Sheill Spencer, some failures and successes from my case-books, 401.
- Sherlock, E. B., the feeble-minded, *Rev.*, 443.
- Sight-testing made easy, W. W. Hardwicke, *Rev.*, 448.
- Slade, C. B., physical examination and diagnostic anatomy, *Rev.*, 198.
- Smith, W. G., solid solutions and crystalline liquids, 81.
- Smyly, C. P., the diagnosis of renal tuberculosis, 260.
- Smyly, Sir William J., the treatment of eclampsia, 377.
- Solid solutions and crystalline liquids, W. G. Smith, 81.
- Solomons, B. H., scopolamine-morphine anæsthesia in labour, 54.
- Spectacles, the prescribing of, A. S. Percival, *Rev.*, 371.
- Spinal cord, diseases of, R. T. Williamson, *Rev.*, 369.
- Spinal nerves, resection of posterior roots of, Abbe, 468.
- Sprigge, S. S., some considerations of medical education, *Rev.*, 283.
- Stelwagon, H. W., treatise on diseases of the skin, 272.
- Stephens, G. A., vaccine treatment, the *modus operandi* of, 434.
- Steward, F. J., ed. of Guy's Hospital reports, Vol. LXIV., *Rev.*, 439.
- Stewart, G. N., a manual of physiology, *Rev.*, 41.
- Stevens, W. M., medical diagnosis, *Rev.*, 363.
- Still, G. F., ed. of diseases of children, *Rev.*, 124.
- Stoney, R. A., note on the diagnostic value of Luy's segregator, 253, 303.
- Story, J. B., medical inspection of schools and school children, 241, 305.
- Streptococcus vaccine for rheumatic fever, 240.
- Surgery, modern, general and operative, J. C. da Costa, *Rev.*, 134.
- System of medicine by many writers, ed. by Sir C. Allbutt and H. D. Rolleston, *Rev.*, 208.
- Surgery of the brain and spinal cord, Professor F. Krause, trans. by Professor H. A. Haubold, *Rev.*, 136.
- Surgery, operative, a manual of, Sir F. Treves, *Rev.*, 200.
- Surgery, urgent, F. Lélars, trans. by W. Dickie, *Rev.*, 207.
- Surgical after-treatment, L. R. G. Crandon, *Rev.*, 195.
- Surgical diagnosis, A. B. Johnston, *Rev.*, 133.
- Surgical, modern technique of, in its relation to operations and wound treatment, C. Yelverton Pearson, *Rev.*, 438.
- Sutherland, W. G., dispensing made easy, *Rev.*, 199.
- Symington, Professor J., Quain's elements of anatomy in four volumes, Vol. III., neurology, Part II., *Rev.*, 356: the topographical anatomy of the salivary glands, 386.
- Syphilis, a system of, ed. by D'Arcy Power and K. Murphy, *Rev.*, 126.
- Syphilis, treatment of, by the Ehrlich-Hata remedy, J. Bresler, trans. by Dr. Eder, *Rev.*, 201.

- Tabloid chemicals for colour photography, 160.
- Tetany, with an illustrative case, C. W. Chester Myles, 328.
- Text-book of general bacteriology, E. O. Jordan, *Rev.*, 123.
- Text-book of massage, L. L. Despard, *Rev.* 210.
- Three cases of locomotor ataxy, Drs. O'Carroll, Coleman and Dempsey, 61.
- Thrombosis of the superior mesenteric vein, a case of, by John Burgess, 114, 145.
- Topographical anatomy of the salivary glands, Professor Symington, 386.
- Transactions of the American Dermatological Association, 1908 and 1909, *Rev.*, 31.
- Transactions of the American Pediatric Society, ed. by L. Edford la Febra, *Rev.*, 197.
- Transactions of the thirty-second annual meeting of the American Laryngological Association, *Rev.*, 47.
- Treatment of disease, W. Osler, *Rev.*, 31.
- Treatment of fractures by ancient and modern method, W. I. de C. Wheeler, 1.
- Treves, Sir F., a manual of operative surgery, *Rev.*, 200.
- Tuberculosis Committee, Dublin Hospitals, 397.
- Tuberculosis in Ireland, the campaign against, 400.
- Tumour of the pituitary body, Dr. Hayes, 296.
- Turin International Exhibition, 1911, 239.
- Tweedy, Hastings, a series of cases illustrating the operation of pubiotomy, 374.
- Tweedy, Hastings, carcinoma of fallopian tube, 51.
- Two unusual gall-bladder cases, W. S. Haughton, 221.
- Urinary surgery, F. Kidd, *Rev.*, 278.
- Urine examination made easy, T. Carruthers, *Rev.*, 442.
- Vaccine treatment, the *modus operandi* of, G. A. Stephens, 434.
- V. E. M., 1911, 399.
- Vincent, R., acute intestinal toxæmia in infants, *Rev.*, 270.
- Walker Norman, an introduction to dermatology, *Rev.*, 440.
- Watson, Chalmers, food and feeding in health and disease, *Rev.*, 271.
- Wheeler, W. I. de C., operation for abdominal aneurysm, 143.
- Wheeler, W. I. de C., the treatment of fractures by ancient and modern methods, 1.
- Whitaker, J., almanack for year 1911; Whitaker's peerage, baronetage, knightage and companionship for year 1911, *Rev.*, 122.
- "Wellcome" brand concentrated diphtheria antitoxin, 400.
- Wellcome photographic exposure record and diary, 1911, *Rev.*, 40.
- Williamson, R. T., diseases of the spinal cord, *Rev.*, 369.
- Wood, Mr. B., treatment of laryngeal stricture, 300; and ligature of the internal jugular vein, 300.
- W. Westcott, Salvarsan or 606, its chemistry, pharmacy and therapeutics, *Rev.*, 202.
- Year-book of the scientific and learned societies of Great Britain and Ireland, 1909-1910, *Rev.*, 360.
- Year-books for 1911, an almanack for 1911, J. Whitaker, and Whitaker's peerage, baronetage, knightage and companionship for 1911, *Rev.*, 122.
- Younger, E. E., insanity, *Rev.*, 46.
- Young, E. S., hay fever and paroxysmal sneezing, *Rev.*, 204.
- Zinc ions in fistule of lower jaw, 239.

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